AIR TRANSPORTATION

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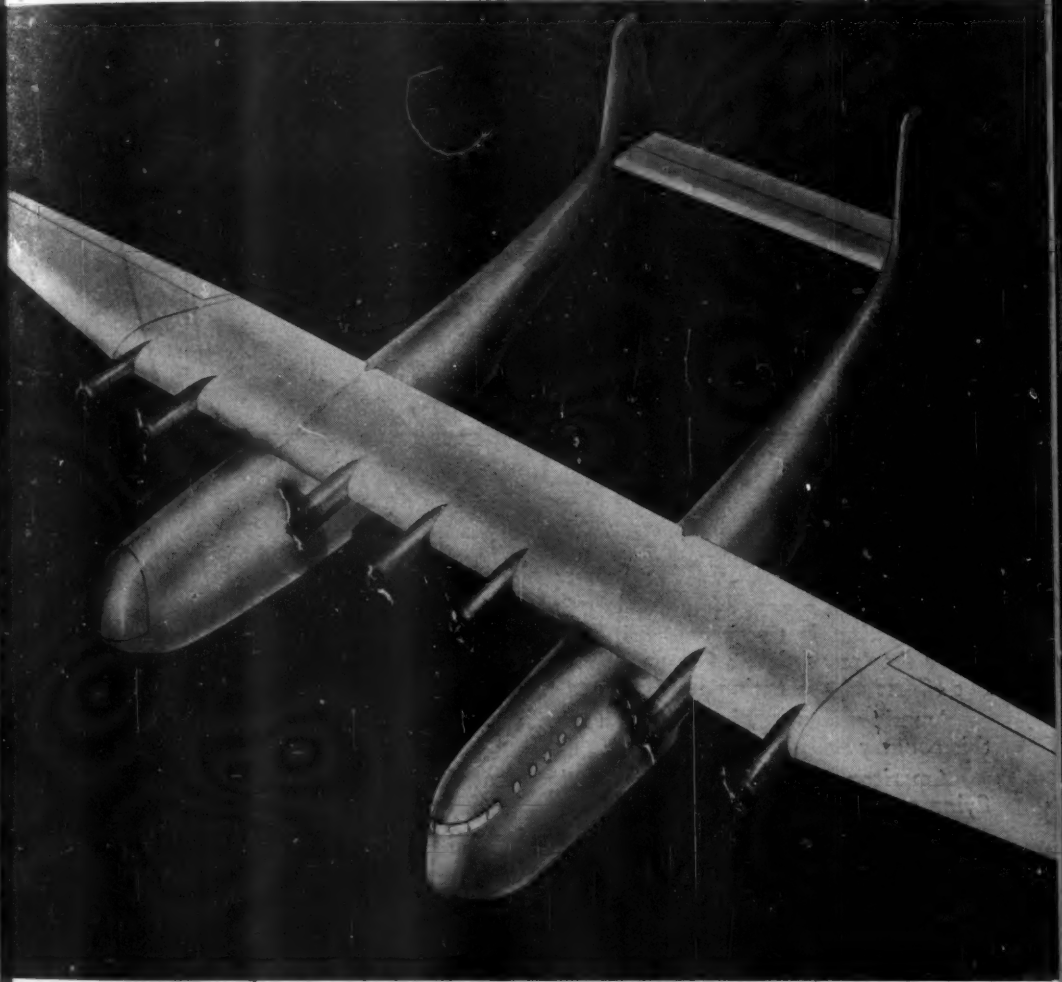

AIR-CARGO-LINER OF TOMORROW

Brainchild of Howard Hughes, probable future product of Henry Kaiser is this two-fuselaged, seven-motored, $6,000,000 plane. Proposed capacity: 60 tons, almost as much as the total weight of the Mars *when fully loaded. (Photo courtesy of* Time.*)*

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He-men Working

The officers and crews of the merchant marine and the flight personnel of overseas transport planes are *front-line fighters every trip.*

For this is a war of the Seven Seas and the boundless sky—a war in which transportation is the very life-blood of victory. Getting men and materials—*where* they're needed, *when* they're needed—is a gigantic job. It demands the all-out efforts of the nation's united transportation resources.

American Export Lines' men on new fast cargo ships are plying the seas between this country and distant shores.

American Export Airlines' men in great four-engine long-range aircraft are flying a new transatlantic air service.

We are proud of these men and pledge the full resources of our co-ordinated international transportation system.

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A New Publication for a New Age

This is the first issue of a new publication—AIR TRANSPORTATION.

AIR TRANSPORTATION begins its career at a time when the eyes of the world are on *cargo-by-air*—a time when no man knows all the answers to this, the most challenging problem of the war. Airmen are stacking up evidence to prove that the day of the ship is done and that planes will one day carry virtually all foreign freight and most domestic freight. Shipping men, on their side, are branding these forecasts as wild dreams.

The Shipper—and with him all the Manufacturers, Importers, Exporters, Forwarders and others who have for many years turned to *American Import & Export Bulletin* for authoritative information—stands confused, not knowing exactly what to think.

Hence, AIR TRANSPORTATION, a publication exclusively about *shipping-by-air*, edited for shippers. Until now, although there are scores of aviation publications, there has been none to fill this need.

AIR TRANSPORTATION makes its bow with no axe to grind except the best interest of its readers. It admits that it does not know all the answers. But it dedicates itself to trying to find them.

AIR TRANSPORTATION is not anti-ship, anti-rail or anti-truck. It is pro-air, because it believes that, sooner or later, *cargo-by-air* will be a mighty force in both domestic and international trade—a force that no shipper can ignore—a force with which every shipper should, in his own interest, be familiar. But it believes that there will continue to be a place for all recognized means of transportation—though many things are being drastically changed during the war and may be even more drastically changed when the war is won.

For the present, at least, AIR TRANSPORTATION will be published as a section of *American Import & Export Bulletin*, since its purpose is to serve—in a new and different way—the *Bulletin*'s audience.

AIR TRANSPORTATION will explore the whole field of *cargo-by-air* from the Shipper's, Manufacturer's, Forwarder's, Importer's and Exporter's standpoints, *now while the whole mighty trend is forming*. It will try to give every reader a clear background of the future, as he must face it, once the war is over. It will offer a medium for exchange of ideas on shipping speeds, handling of cargoes, terminal facilities, shipping costs and all other angles of this great trend—so that when the day of its realization has come, each reader will be better equipped for the opportunities which that day will bring.

JOHN F. BUDD,
Editor & Publisher

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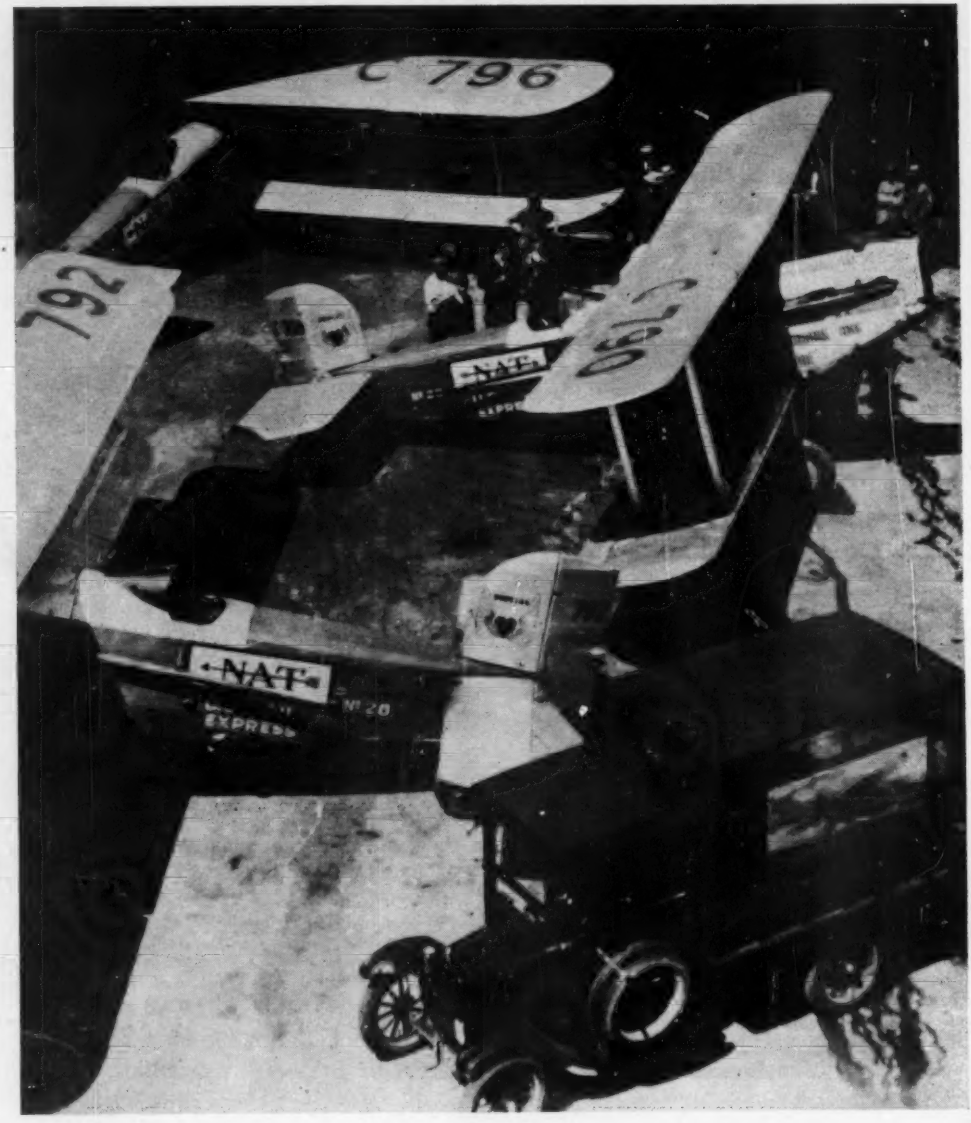
This Was the Coast-to-Coast Beginning



***THOSE WERE THE DAYS OF MODEL T** when cargo-by-air had its American genesis. Lindbergh, riding the crest of his fame as a popular hero, looked back on his historic Paris flight three months before. The planes, too, were Model T's beside today's giants, still tinier beside the super-cargo craft of the immediate tomorrow. The carrier was National Air Transport, predecessor company of today's great United Air Lines. The time: Sept. 1, 1927—scene of the loading of the first coast-to-coast air express shipment.*

Cargo-by-Air: 15-Year-Old Reality

Kaiser Didn't Invent It, Though He Won It More News Attention in a Month Than It Had Received in a Decade and a Half

CARGO-BY-AIR, in its original form of air express, had its birth as a national service in the U. S. in a time of great popular excitement about aviation. In 1927, we were a nation excited over our future in the air as we have never been since until the coming of today's great wave of enthusiasm about air cargo.

Cities by the score were opening new airports to get ready for the age when millions of Americans would be flying their own planes—an age that, said the enthusiasts, was just around the corner. Lindbergh was zooming around the country to show the millions his history-making *Spirit of St. Louis* with which he had just flown from New York to Le Bourget. But 1929 came too soon—and the kind of air age the enthusiasts had been picturing got lost in Depression.

But through that period of high excitement followed by disillusion, the realists of air transport kept plugging. And air transport steadily grew in the hands of realists who knew it would take time.

Today, we are living in another period of vast excitement about the immediate future of aviation—this time about aviation's destiny as a carrier of cargo. Today, as in 1927, we have our enthusiasts, who predict now an overnight transformation of most of our cargo transport to the air. No matter what their promises and our hopes, it is not likely that it can be done with anything like the rapidity which the enthusiasts urge or which the necessities of World War II demand. Nor is it likely that the transformation will ever be as complete as some think it will.

But come it will. Of that there can be little doubt. And to understand and to take advantage of its coming, it is important that all who will be users of the vastly expanded air cargo services of the future know that this is no pipedream of present-day enthusiasts. It is no brand-new, untested product of 1942. It has existed as a going concern since 1927, though it had its first experimental beginnings long before that. What is soon to come is merely a great expansion of what has gone before. And this expansion must be achieved largely on the basis of the experience gained during

THIS WAS 1934, as Pan American, United and Railway Express forwarded the first international air express from the U. S. It was bound for Latin America.

this past decade and a half of actual air cargo operation in this country.

The year 1927 wasn't, of course, the beginning. Small amounts of air freight had been flown even before World War I. In November, 1919, the first express flight was undertaken by the company then known as American Railway Express. With a big (14-ton gross weight, 126-ft. wingspread, four motors) Handley-Page plane that was a sister ship of the one in which Alcock and Brown had just made the first non-stop transatlantic flight, the company planned to launch a daily overnight non-stop cargo schedule between New York and Chicago. That, remember, was before any regularly scheduled airline was in operation in the U. S.

Unfortunately, the big ship developed motor trouble on its first flight and was forced to land

VIA THE ILL-FATED* Hindenburg, *transatlantic air express made a brief debut as long ago as 1936. Photo shows shipment being loaded for flight to Zeppelin's terminal at Lakehurst, N. J.

and transfer its cargo to rail. But the start had been made, though the planned schedule never went into effect.

Meanwhile, cargo was being flown here and there in many parts of the world. In Latin America, one of the great fruit companies started a cargo plane service between the Caribbean seacoast and Tegucigalpa. An organization known as Huff Deland Co. developed a cargo plane and eventually had six of them in operation in the south hauling chemicals for dusting cotton fields. And in the spring of 1927, when the great floods inundated much of Mississippi, Louisiana and Arkansas, the U. S. Navy did a substantial amount of cargo flying —carrying items as heavy as outboard motors— in the course of its rescue work in the stricken area.

Finally, on Sept. 1, 1927, transcontinental air express and transcontinental air mail were inaugurated. The express service began on National Air Transport, Boeing Air Transport (the two later joined to form the basis of today's United Air Lines), Western Air (later to become part of TWA) and Colonial Air Transport.

There were other parallel efforts. Ford Motor Co., for instance, operated its own cargo plane service between Dearborn and Chicago, Cleveland and Buffalo from 1928 to 1932, flying eventually a total of 14,000,000 lbs. of freight between its plants, including even at that early day items as heavy as complete, non-assembled automobiles. Other aircraft makers, such as Bellanca and Fairchild, designed planes especially as cargo carriers, and in December 1934, William A. M. Burden, now special assistant to the Secretary of Commerce*, prepared for Fairchild a booklet, "Air Express in the United States," one of the most far-reaching research jobs on cargo-by-air done up to that time.

There were other efforts, too, but none seemed to last. In San Francisco, Air Ferries Co. started flying cargo across the Bay to Oakland, flew 35,000 lbs. in three months—mostly newspapers—but gave up when completion of the Bay Bridge and extension of the airlines from Oakland to San Francisco seemed sure to cut down the potential traffic. In late 1932, Air Express Corp. was formed to operate an overnight, express-only line between New York and Los Angeles, but the traffic to support it wasn't there and it expired early in 1933.

In 1932, of course, General Air Express was started by a number of airlines, and operated for five years, while the Railway Express Agency continued its arrangement with the airlines that had originally contracted with it. Eventually, GAE was abandoned and by September 1937 all the major airlines were operating, as now, through Railway Express.

Since that time, the use of air express in the U. S. has steadily moved forward. Though in 1932, only 25,000 air express shipments were carried, 1941 saw the number of shipments pass 1,300,000, and the first half of 1942 recorded 677,147 shipments. In 1933, the total number of pounds carried was only 404,640, 1941 saw air express hauling a total of 11,240,204 lbs.

And though in 1932 the average charge per shipment of 5.87 lbs. was $3.90, the 1941 average charge for the average shipment of 8.50 lbs. was down to $3.22.

*For a brief look at Mr. Burden's views on air cargo, eight years later, see his current article on page 29.

WORLD WAR I had been over only a year when Railway Express took off from New York for Chicago with air express, flying this Handley-Page bomber, giant aircraft of its day and sister ship of the plane with which Alcock and Brown made their historic first non-stop flight across the Atlantic.

The first coast-to-coast shipments took 36 hours, including 16 stops for fueling. Today, transcontinental flights are of course overnight trips of 16 hours with only four stops.

The single-motored biplanes used in the early days of air express could carry only tiny packages. Today's airliners carry up to two tons of express. But of course the inauguration inside the U. S. of full-fledged all-cargo planes on any large scale is still to come. Virtually all air express today—not including, of course, the vast and necessarily secret operations of the Armed Forces in air transport—is carried in the express compartments of passenger planes.

In the opinion of C. G. Peterson, who is chief engineer of Railway Express Agency Inc., however, "it will be less profitable to conduct an exclusive cargo operation than to continue the present arrangement used by 19 airlines for handling air express and freight (in combination with passengers)."

Late in 1941, Engineer Peterson constructed an estimate of the future growth of air express tonnage, projected up to 1946. He calculated on the basis of all of the Express Agency's wealth of data on the subject that in 1946 the shippers of the country would send by air a total of 3,732,140 shipments weighing a total of 37,000,000 lbs—or 322 per cent above 1941's air express tonnage. That was before Dec. 7.

Peterson points out, as anyone must recognize who looks as all shippers must into all the cost factors involved, that despite all that wartime strategy may now dictate and all that the enthusiasts may predict, there will still be many competitive factors in the movement of express and freight. All of them will be competitors of the air cargo services of the future, insofar as the movement of goods within the U. S. and Canada is concerned.

He cites the following:

1. *Domestic air mail*, costing 6 cents per oz. or 96 cents per lb. and in general less costly than air express for shipments under one pound and more costly for larger shipments. Of course there is an extra charge for mail special delivery and insurance—items which to a degree are included in domestic air express charges. An interesting comparison: in fiscal 1940 (ending June 30, 1940) there were carried 5,399 tons of domestic air mail, 5,582 tons of domestic air express. Average air mail charge per pound was $1.77, average air express charge 38 cents.

2. *Parcel post*, much slower but much cheaper than air transport of any kind, of course.

3. *Rail express.*

4. *Freight forwarder service*, which today is

strongly competitive with rail express and might constitute an active alternative service for air shipments because of the low rates offered by forwarders in handling heavy long-haul traffic.

5. *L. c. l. rail freight,* still slower but still less costly.

6. *Common carrier intercity trucks.*

7. *Carload rail and water freight.*

The air cargo operations of the future must make their way, economically, against all of this competition, in the years that follow the war when military necessity no longer overrides the everyday dictates of cost figures. Obviously, there will be vast increases in the shipping done by air as costs decrease and as shippers discover new economies in faster forwarding of their merchandise.

In the international field, of course, the situation is very different. The time advantage over competitive modes of transport for foreign shipments is far greater than that which obtains in the U. S. The lack of well developed rail transport in many countries—the fact that inland airports are as accessible to air cargo craft as the finest seaports are to ships—and the tremendous numbers of big planes of transoceanic range and large carrying capacity which will be available at war's end—all of these things will combine to make the economic advantages of cargo-by-air probably far more evident internationally than here in the U. S.

THAT HEAVY AIR shipments could be made over long distances was proved long before last Dec. 7, when this 750-lb. crankshaft was flown 6,800 miles from Chicago to Wake Island.

As J. M. Shanaphy, air traffic executive of Railway Express, told the Northwest Aviation Planning Council recently in Spokane:

"I am an enthusiastic believer in the future of air cargo. I have watched its steady growth in our air express service over the last few years despite the handicap of rates substantially higher than rail express rates. Prior to last December, we had long passed the time when the service was used only to meet breakdowns or in matters of life and death. Thousands of patrons had become regular air express shippers.

"When our present troubles are over I am not too sure that the vast armadas of war planes, excepting perhaps the transport planes, will be or can be diverted to cargo transport use. Some of you men will remember that while the last war gave a tremendous impetus to commercial aviation, the new industry provided no substantial outlet for military equipment. However, the phenomenally increased pace of productive capacity and the vast improvements being made in all types of aircraft will usher in a new era for air transport. Mass production methods will reduce manufacturing and operating costs and these reductions will be translated into reduced transportation charges.

"I expect then to see the business grow in leaps and bounds, but I do not expect that all of the railroad freight and steamship cargo will take to the air over night.

"Again, a system of distribution has been developed over the last century throughout our country involving the investment of enormous sums of money in warehousing, inventories and so forth.

"* * * I reaffirm my unquestioning belief, and that of the management of my company in the tremendous growth of air cargo which will begin immediately following the war. Railway Express Agency plans to meet this expansion by applying all of the experience it has garnered in more than one hundred years of express transportation."

Don't miss all the news of the National Foreign Trade Council in the October issue of American Import & Export Bulletin, issued concurrently with Air Transportation.

To make sure you continue receiving both the American Import & Export Bulletin and Air Transportation, send your subscription to the publisher, 10 Bridge St., New York City, today.

Air Cargo & the 3 R's

Tomorrow's Children Will Know All About Aviation, From Primary Grades On

By Jesse H. Jones
U. S. Secretary of Commerce

To the casual observer among shippers, there may at first seem small relation between their own shipping problems of the future and the education of American youth on aviation. But to Secretary of Commerce Jesse H. Jones, no professional airman but a hard-headed banker by trade, there is a significant link. For the generation that will grow up after the war will not only man the air transport of the future, but will demand that it be served in the new and faster tempo of life that cargo-by-air will make possible. Air Transportation *therefore presents here the major portion of Secretary Jones' address on* "New ABC's for the Air Age" *as delivered over Washington's WJSV on Sept. 10—as a challenging view of a future America in which Air Cargo will have a dynamic rôle.*

FOR thousands of years, ever since the days of the Greeks and the Hebrew prophets, men have been dreaming of the day when they would fashion themselves a pair of wings and go flying through the skies with the freedom of a bird.

That day has dawned. The world has crossed the threshold of the Air Age. Thanks to the genius of two Americans, Orville and Wilbur Wright, mankind is now fairly launched upon the most exciting and perhaps the greatest of all our adventures.

We have acquired a new third dimension—a vast new world. The sky is the new frontier waiting to be explored and conquered.

All of us are more or less aware of the growing influence of the airplane. But merely to be aware of this is not enough. We must do something about it—encourage it, help to improve and expand it. Above all else, we must make sure that our children are adequately equipped. Otherwise they will not be masters of their own fate in the world of tomorrow.

Already something is being done about it. A nation-wide educational program specifically designed for the Air Age is now actually under way in tens of thousands of high schools and grade schools in all the 48 states. . . .

Initiated by the Civil Aeronautics Administration, this program is also sponsored by the U. S. Office of Education under Commissioner John W. Studebaker. . . . Definite proposals for a pattern of high school student organization, which will help to foster and promote the work, will shortly be announced to the schools of the nation by a National Policy Committee, associated with the Office of Education, and representing the War Department, Navy Department, Department of Commerce and civilian aviation. The pre-flight education program is merely preparing our boys and girls for this third dimension in our lives—flying. It has the active support of the Institute of Aeronautical Sciences, the American Legion, hundreds of colleges and universities and teacher-training schools and local boards of education from coast to coast. . . .

About three and a half years ago, six months before the Nazi invasion of Poland, CAA offered its first experimental course in the Civilian

Pilot Training Program. This program was primarily designed to prepare America for the leading role it was bound to play in the rapidly expanding commerce of the skies. But CAA was also mindful of the potential military value of having a large reservoir of trained fliers available for any emergency. At that time there were only 22,000 civilian pilots in the entire United States.

So successful was the initial course of CAA that Congress appropriated $4,000,000 to carry on a greatly expanded program during 1939-1940. Some 500 colleges and universities participated in instructing 10,000 pilots in aerodynamics, navigation, meteorology and related subjects. Students were given actual flight instruction at nearby flying schools.

Graduates were awarded private pilot licenses signifying that each had completed 72 hours of ground school work and had at least 35 hours of flying experience. All told, the CAA training program has produced some 80,000 pilots, more than 30,000 of whom are now serving in the Armed Forces. . . .

CAA does no combat training. But its graduates, seasoned by Army and Navy combat training, have been in action at Midway, in the Coral Sea, in the Philippines, in China and Burma, in the famed Eagle Squadron of the RAF and in Jimmie Doolittle's brilliant raid on Tokyo.

The program was begun at the college level, but an educational program should start in the secondary and primary schools, and that is what we are now doing for aviation education.

Even the youngest children are interested in planes and are fascinated by flying. More than 2,000,000 have been building and flying model airplanes in recent years. We are now channeling this lively and spontaneous youthful interest into the classroom.

We are accustomed to thinking of ourselves as creatures living on top of the ground. We should realize that we are living at the bottom of an ocean of air, readily navigable in all directions, at tremendous speeds.

It took our Pilgrim Fathers 67 days to cross the Atlantic. Today, giant planes hop across in less than 10 hours. Physically it is the same old bad-tempered Atlantic Ocean, but geographically it is 10 hours' flying time. Every age writes its own geography, and ours is being written by the airplane, just as medieval geography was written by the sailing ship. . . .

Air power raises a multitude of problems that cannot be solved by two-dimension thinking. What effect, for example, is air traffic going to have upon our railroads and ocean shipping? What population shifts are going to occur as a result? What new trade routes and markets are going to be opened up? What influence is the airplane going to have upon community planning?

After this war there will be a phenomenal boom in flying for all purposes—as phenomenal as the growth of the automobile and truck after the last war. What will this mean in terms of traffic control, airports, landing strips along highways, radio beams and beacons, and other facilities?

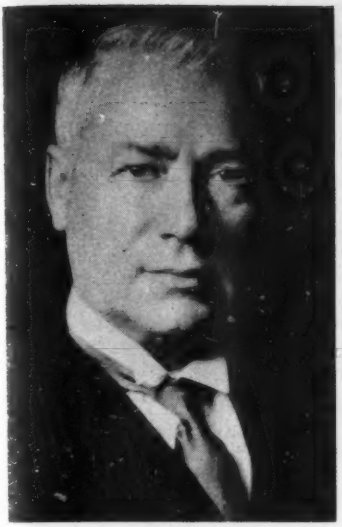
Less than a year ago CAA and the Office of Education appointed a joint advisory committee of educational and aeronautical experts to study the proper means of introducing the ABC's of flying into the lower schools. Through its aviation education research projects, the services of eminent scientists, geographers, historians, and other specialists were enlisted. The latter undertook to prepare teachers' manuals, and suitable text material for use in the classroom. That material is now available and in use in thousands of schools.

The ultimate success of the program depends upon the cooperation of mothers and fathers and school authorities. Your own local school authorities will determine how much of the program is to be initiated in the classrooms under their jurisdiction. They will likewise determine the specific ways in which it will be carried out. It is not arbitrary. It is for local school boards to decide how far they wish to go.

But rest assured that aviation is here to stay, and it is as necessary to learn about it as it was to learn about all steps in improved transportation from Fulton's steamboat to ocean liners, and from Watt's steam engine to streamlined trains.

The program is not a fad; it is an obligation which we owe to the younger generation. For there can be no doubt that our future strength lies in air power and our ability to make use of it. We were the first to fly. We have led in all aerial developments. We must not surrender that leadership. With the coming of peace our responsibilities will be world-wide, and it will be necessary for us to maintain air communication on a scale which dwarfs the imagination of the most far-sighted.

We should not forget, even under present circumstances, that we must be preparing for the days when hostilities will cease. Air training has become a matter of self-preservation, and air power will play as large a part in reconstruction as it does in destruction. In the future it will mark our progress, measure our welfare, and will be our most effective aid in maintaining the just peace for which we are now fighting.



A Shipper Looks At Air Freight

Remington Rand's Zellers Weighs the Evidence from Outside the Aviation Field

By John A. Zellers

Vice President, Remington Rand Inc.
President, Advertising Club of New York

PUCK'S offer to put a girdle 'round the earth in forty minutes had to wait on the telegraph and radio for fulfillment, and the Magic Carpet of the Arabian Nights became a reality only in the present generation of men.

Now that man is employing both quite casually and realistically in his daily endeavors, it may be well to take a look at the expanding possibilities of *cargo transportation by air*, especially in the light of the enormous planes that are now being turned out for military use.

The First World War forced the development of air transportation as nothing else could, and soon after its close we found air express service established between Paris and London, and between other areas, which at first was limited to lighter parcels, but soon cargo planes were placed in regular service because of the growing needs. The service still was mainly limited to light parcels by high rates and limited plane capacity, but as the size of planes increased, the rates tended to come down, and the bulk of and number of parcels steadily increased.

In Mexico and in certain other areas in the Western as well as in the Eastern Hemisphere, the growth and utilization of planes for cargo increased with great rapidity, and we began hearing of heavy oil well and mining machinery parts being flown into otherwise inaccessible places, of enormous savings in time and increases of plant output, and of the avoidance of lengthy shutdowns in remote places in consequence of this almost magical cargo service by air.

In September 1927 the owners of four United States airlines associated themselves to offer shippers a coast-to-coast freight service. In the intervening 15 years the undertaking has grown from the 17,000 shipments which it handled in the first full year of operation to 677,000 shipments handled in the first six months of 1942.

Meanwhile rates have been lowered from $15 for five pounds from coast to coast to $4.80 at present, and the cross-country flying time has been reduced from 23 hours to from 15 to 17 with a low record of some seven hours.

Even before the present war began, we were hearing prophecies of much greater extension of air cargo service, and of progressive lowering of cost. Now that trans-ocean air cargo service is being so extensively employed by our military establishment, we can no longer doubt its ultimate efficacy in transporting increasingly heavy cargoes at progressively lowering costs.

The maximum in weights of cargo carried, and the minimum of costs have not yet been approached, in all probability, and it would be a bold prophet indeed who would venture to say when either would be reached.

As in freight, so in passenger service is air transportation just entering the threshold of its ultimate usefulness. It has been predicted that no more large luxury ocean liners will be built, so strong has airplane competition already become. Again it was predicted ten or more years ago that the plane would displace the liner for fast travel, and actually this has come about already, having been forced upon us, prematurely perhaps, by war conditions. For

who now thinks of going to Europe, or to South America, Asia, Africa or Australia, except by air?

Serious thought is being given by many competent persons to the advantages this great use of air transport will give the people of the world.

In our own business we have progressively increased the use of air service in both hemispheres. For communication and the forwarding of parcels, usually containing urgently needed parts or supplies, our European offices steadfastly used air service ever since the last war ended, and this service was extended, especially from London and from the Netherlands to important points in Asia, Africa, the East Indies and the Antipodes.

Then air service began to develop in this hemisphere, and in common with others we extended and increased our use of air transport until a large part of our cross country mail, as well as that to the other Americas and later overseas to Europe and the Far East, went by air. Now the first set of shipping papers always go by air—and the sending of small parcels has increased to those countries still open for trade. Probably we use air mail and forwarding service at least 50 times as much as we did 20 years ago.

Already in Great Britain there is agitation for the establishment of an initial fleet of 5,000 cargo planes for immediate use after war to preserve for them the dominance in air shipping that they have enjoyed in ocean shipping throughout the world. (*See page 40.*) It is estimated that such a fleet, each plane making a transatlantic round trip every four days, could move 150,000 tons of freight weekly each way.

It does not follow that all other means of transportation will be destroyed. It is conceivable that certain forms of surface transportation by land and by water could be augmented and even increased by an enormous development of air transportation facilities. When typewriters were first employed, it was thought that many old occupations of scribes, correspondents, clerks and bookkeepers would be gone, but in this country alone more than 750,000 of our inhabitants earn a living by means of the typewriter, and there are as many in other lands who likewise benefit from this American development.

Along with it goes an increased employment in postal service, in paper manufacturing, in providing office space and facilities. Our entire economy has been expanded, particularly by the employment of women in business—for which the typewriter is chiefly responsible.

So it may well be with increased use of air transport. Its speed and universality of geographical service will be utilized by man everywhere—and this will lead to the gratification of more of his wants, and to increased activity in other directions, all of which should make for greater commerce in the aggregate, and bring the peoples of the earth closer together, and, we hope, make them more peacefully inclined toward one another.

Air Transportation Books

The Aircraft Year Book for 1942, edited by Howard Mingos. A current history of our air power in World War II which is published annually. It is technically accurate and arranged so that all may have access to the facts concerning aviation. It is the official reference work of the Army and Navy Air Forces and approved by the American Library Association. Copies may be obtained from the Aeronautical Chamber of Commerce of America, Inc., 30 Rockefeller Plaza, New York. *$5.00.*

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American Aviation Directory, Vol. 3, No. 1. The standard reference guide of aviation officials and companies of the U. S., Canada and Latin America, published twice a year. It contains valuable information about manufacturers, accessories, and parent and holding com panies, a section devoted to the Government, and another that deals with air transportation. Copies may be obtained from American Aviation Associates, Inc., American Bldg., Washington. *$5.00.*

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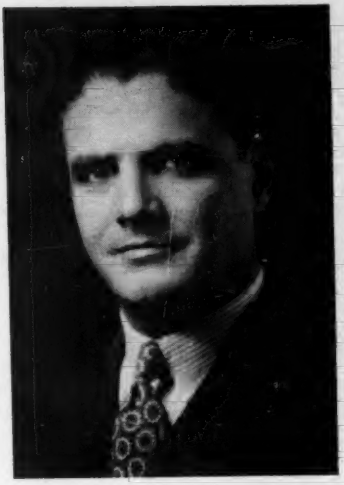
Victory Through Air Power, by Major Alexander P. de Seversky. Outlines a specific strategy of victory, tells how, in the author's opinion, America can win the war, how air power has won all the crucial battles to date. It explains why the U. S. is ideally equipped to use that weapon and take the offensive against the Axis. Copies may be obtained from Simon & Schuster, 1230 Sixth Ave., New York. *$2.50.*

Airlines Too Slow?

War Forces Progress That Should Have Come Long Before, Mayer Contends



By CHESTER MACK MAYER, *President*
Air Express International Agency, Inc.

Chester Mack Mayer is president and sole owner of Air Express International Agency, which maintains offices in New York and Miami, specializing in the handling of air express. Born in New York City in 1910, graduated from the University of Virginia in 1934, he started his career in the sales department of General Cigar Co.

A year later, he took over a department of John H. Faunce & Co.'s business, known as Air Express International Agency, then in an embryonic state. This company today facilitates the shipment of express combining the services of air and steamer to and from ports in Latin America, Europe, the Near East, India, Africa and Australia. Mr. Mayer has made many trips abroad to promote Air/Sea shipping designed to link Europe, the United States and Latin America more closely, and dealt with many European air companies, including Imperial Airways, Royal Dutch, Airfrance, Deutsche Lufthansa and the Zeppelin company. From his broad knowledge of air express, he here presents his views. His opinions are entirely his own, and do not in any case necessarily reflect those of AIR TRANSPORTATION.

IT took a great war to awaken the American aviation industry to the possibilities of shipping by air. Up to December 7, 1941, air transportation of cargo had been the stepchild of aviation, the "Orphan Annie" of the airlines. The industry was not receptive to suggestions which would have led to an early increase in express volume.

The passenger business and the mails were receiving most of the attention of our airlines though, curiously enough, in foreign fields such as Europe and South America, serious thought had long since been given to the development and operation of air cargo. As early as 1929, KLM in Holland, Deutsche Lufthansa in Germany and TACA in Central America operated cargo planes on a considerable scale.

In 1939, the statements of Lowell Yerex, president of Transportes Aereos Centro Americanos (TACA), indicated that his airline alone had carried more freight than all U. S. airlines combined. At the time, TACA employed Ford tri-motor planes, outmoded and rejected in the States because of lack of speed, though adequate for cargo purposes. The aviation industry in this country was wholly preoccupied with the building of fast passenger planes designed to cut traveling time by hours or minutes across the continent. The desirability of developing cargo-carrying planes was only in the controversial stage.

An interesting illustration of the retarded development of air express in this country is what was considered a sensational feat carried out by one progressive company. In 1939, the Kellogg Company dispatched two suitcases around the world in opposite directions by air express. The cases and their contents were used as grand prizes in an advertising campaign in conjunction with a radio program. This undertaking gave a great deal of publicity to a public not air

express-minded. In contrast, an important gold mining company located in New Guinea had several years previously contracted with a German transport company to move huge dredges, which were flown piecemeal from Australia to the site of operations.

Upon the outbreak of the war, the airlines were unprepared for the task to be imposed upon them. The Army had to follow the precepts of our Axis opponents, who had already done a magnificent job in transporting armies and military equipment by both cargo planes and gliders. The use of the glider plane, developed in Germany, was furthered several years before the war through clubs which the Government encouraged among the younger people. When the full story is told concerning the manner in which the Germans landed very substantial numbers of troops and equipment in Norway, Crete, and elsewhere by transport planes, gliders and parachutes, the world will be impressed by their far more prompt recognition of the advantages of these devices.

There is a bright future for air cargo. The Army deserves most of the credit for showing us the way. This could have been done by the airlines years before—not by converting planes, a procedure of doubtful practicability, but by building new ships specifically for freight. Of all the American airlines, the one which has shown the greatest foresight in the development of air express and air cargo is Pan American Airways, whose service in that direction is steadily expanding. Credit for this should go to V. E. Chenea, vice president and general traffic manager, and L. A. Cholot, express traffic manager, of Pan American.

Railway Express Agency, with offices throughout the country, acts as receiving stations for Pan American's international express service, solicits air express, and renders pick-up and delivery service for the domestic airlines. This agency has often been charged with discouraging the growth of air express.

True, prior to 1940 there was some agitation on the part of individual airlines and private individuals to stimulate more efficient solicitation, pick-up and delivery for air express. Relatively little had been done by Railway Express Agency in that direction. Certainly, little had been done to educate the shipping public to the benefits of shipping by air. However, Railway Express should not be blamed for this.

The onus should rest rather on the airlines themselves: their half-hearted interest in air express caused them to be unwilling to devote time and energy to developing efficiently their own express sales departments and organizing pick-up and delivery service. What the airlines failed to realize is that they had unwittingly entrusted the future of air express to an agency whose hands were tied, since its owners, the railroads, were the most potent competitors of air express. The truth probably is that the airlines did not then foresee profit in cargo. During the last few years the increase in air express has indicated more interest and closer cooperation between the Railway Express Agency and the domestic airlines with gratifying results.

In all fairness, it should be said that the foreign air transport industry is guided largely by government and the profit phase is not so important as it is here. The airlines in Europe had few financial worries, whereas in the U. S. at that time business naturally had to develop in the direction where the greatest public demand appeared.

Another branch in the field of international air express in which Railway Express Agency became interested was through Air Express International Agency, for which company they also performed solicitation and pick-up service throughout the United States. Seven years ago this New York concern conceived the idea of combining air and steamer service, known as Air/Sea Express. Much of the traffic of the company was solicited and delivered to New York by the air or rail services of Railway Express Agency. At New York, shipments were consolidated and re-forwarded to Europe by the first fast available liner. Packages were discharged from the steamer at such ports as Southampton, Bremerhaven and Le Havre and were immediately transferred by Air Express International Agency agents to the airports at Croydon, Hamburg and Le Bourget.

From these airports packages were sent forward in the first available express-carrying plane to ultimate destinations in Europe, India, Africa, the Near East, Malaya, Java and Australia. In Latin America, Pan American Airways received packages destined for Europe which were flown to New York, where they were received by Air Express International Agency and redispatched across the Atlantic, in accordance with the procedure outlined above.

Up to the time of the outbreak of hostilities, when all commercial air cargo activities became demoralized abroad, progressive growth had evidenced itself in the steadily increasing volume of express carried by air. Domestically, real growth did not begin until 1939-40, and even today there is a question of how profitable the present air cargo volume is to the carriers. How-

ever, the airlines now realize that volume will come and thus costs will decline—with resultant increase in revenue.

Every new industry has uphill climbing, at least until volume is developed. Up to this time there has been selling resistance to the use of air express as a means of transportation, but just as we have become more nonchalant in the use of the long distance telephone as rates have been reduced, so will air cargo become a means of much greater utility. The stimulus in the latter case will undoubtedly be felt after termination of the war.

It is difficult to visualize the future prospects of the aviation industry other than to accept the view that civil aviation will develop greatly. As to the economic outlook in a post-war world, one cannot express himself with any certainty. However, it can be stated that the war will promote world transportation and knit the peoples of the world more closely, quite as the telephone and radio have done. When the time for reconstruction arrives, full use will be made of many technical improvements which would have been attained far more slowly under normal conditions.

The degree of increase of future profit for the aviation industry itself cannot be predicted now. Strictly speaking, the financial reward for the carriers from the standpoint of capital cannot be stated to have been very great thus far for any branch of the aviation industry. It is a just compliment to American initiative that, regulated as the industry has been, it has not been thwarted in its desire for progress, so inherent in American industry. To what degree rates are to be restricted remains to be seen. Undue Government regulation of private enterprise may prove a deterrent in this, an industry which requires painstaking supervision by highly trained and adequately compensated personnel.

The aircraft factories which have been developed to produce our many thousands of planes will not be idle after war's end. These plants will be used to produce passenger and cargo-carrying planes and probably much of the equipment that is left over will be converted into "flying boxcars." It is believed, however, that conversion of planes will not be as economical and satisfactory as planes specially designed for cargo carrying. At this time a corollary may be cited in that passenger automobiles are flooding the used-car market. Though the engines and chasses of these autos should be satisfactory for commercial use for delivery trucks and public conveyances, minor conversion is unsatisfactory and major conversion too costly; similarly, in peacetime passenger steamers are not generally changed over to freighters.

No one should be converted to the idea of shipping *all* freight by air after the war. Certainly, the bus and truck lines throughout the U. S. have not made the railroads impotent. The day is not close at hand when New York harbor will lose its importance as the Americas' greatest seaport, for surely bulk cargoes such as grain, wheat, sisal, cork, ore and very many other commodities will still be carried by overseas freight-ships.

Aviation enthusiasts fail to give consideration to the fact that shipyards throughout the United States and allied countries are launching freight vessels which will not become outmoded rapidly.

It is the writer's opinion that there will be an abundance of business available for all air cargo facilities and surface vessels after the war, in the light of the great post-war reconstruction necessities. Looking further ahead, ships, railroads and other means of surface transport will, it is believed, have to give ground to air transport where speed of delivery is essential but, by and large, economics will continue to prevail.

American Airlines' Express Total Up 125 Per Cent for August

Air express carried by American Airlines Inc. during August increased 125 per cent over August 1941, M. D. Miller, manager of mail, express and freight for the line, has announced. The August total was 1,221,583 lb. as compared to 542,878 lb. flown last August.

For the first eight months 6,802,786 lb. were transported, an increase of 105 per cent over the 1941 total of 3,309,800 lb. The figures become astronomical when expressed in pound-miles. The total for the first eight months was 3,441,483,072 pound-miles against 1,627,635,191 pound-miles in 1941, for an increase of 111 per cent. In August 1942 alone, American flew 627,642,507 pound-miles of air express and freight, an increase of 161 per cent over the August 1941 figure of 240,461,886.

On account of the tremendous increase in air express carried, American has developed a handy Shippers' Guide which clearly defines the scope and limitations of present-day air freight shipment. The Guide, first of its type published by an airline, is available at any American traffic office, or by writing headquarters at La Guardia Field, New York.

"These figures do not include the vast amount of freight the airline is flying daily under contract for the government," Miller said, "but only cargo flown on regular passenger schedules."

DEHYDRATED FOOD: Planes may be hauling it soon.

Foods Delivered By Air?

Dehydration Makes Possible Partnership with Air Cargo That May Work Miracles

AS America's production of air freighters increases, dehydrated foods may go to the fighting fronts along with munitions, guns and troops. Because of dehydration's space and weight savings, 30 planes of the size of the B-19 could transport the equivalent of 27 million pounds of potatoes to Britain in 10 weeks, relieving eight sea freighters for other use.

Capable of shrinking 11 pounds of vegetables to one pound of flakes, three dozen shell eggs to one pound of dried eggs and 25 cases of oranges to one small case of concentrate, dehydration has already made air transport of food practicable in military operations both by the United Nations and the Axis. It is believed that large-scale air transport of food has not yet been tried, however, due to the lack of sufficient air freighters.

From the experience to date of the fast-growing U. S. dehydration industry, it seems likely that within a comparatively short time the production of dehydrated foods and vegetables will reach a rate of 100,000,000 pounds annually, and that total annual dehydrated foods production, including eggs, milk and meat as well, may reach 1,000,000,000 pounds. Each pound of this production represents approximately 10 pounds of the original foodstuff.

Through neutral sources, it has been learned that the German government has recently completed 100 dehydration plants for their troops in Africa and on the Asiatic fronts, and that at least some of this food is probably being transported by air. In the meantime, the British, without adequate dehydration, have had much trouble in feeding their troops in Tobruk, Burma and other isolated areas. When food was dropped from airplanes to beleaguered British troops in Burma, canned milk and beef were used, only to burst when the packages fell.

Added to their economies of weight and space is the advantage that dehydrated foods require no refrigeration.

More than nine-tenths of all U. S. production today is going to the Army, Navy or Lend-Lease with the usual shipping unit a five-gallon tin or other container of similar size. In these tins, the dehydrated equivalent of 400,000,000 pounds of Irish potatoes is going off to war this year, five times the total dehydrated in America last year and 25 times the total dehydrated in 1935.

Familiar to housewives for several years as potato shreds, the dehydrated potatoes pose no problem on the other side to Army mess sergeants or their K. P. assistants. The potatoes are dumped directly from the tin into boiling hot water, allowed to remain covered for seven or eight minutes, and are then whipped in butter and milk, American style.

All of the famous potato-raising areas of the United States—Idaho, Maine, New York including Long Island, Pennsylvania, Colorado, California and the others—are represented in America's production of dehydrated potatoes, with the first two states contributing perhaps 60 per cent of the total. The potato varieties most used are Russets, Chippewas, Green Mountain and Early Ohios, although other kinds also are being sent through the dehydration tunnels.

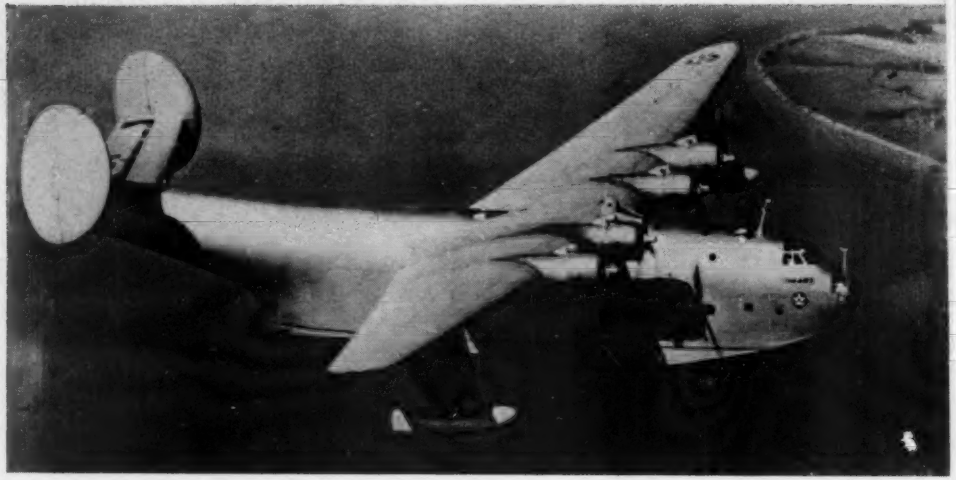
Behind the tremendous expansion of America's production of dehydrated potatoes and other foods vital to the nation's war effort, lies the correlated work of the U. S. Department of Agriculture, individual members of the industry, and technologists from a dozen universities and laboratories and from the Army's Quartermaster Corps. The industry today is working at top capacity, with additional plant facilities being made available almost daily.

Pictograph Corp.

HERE'S GRAPHIC proof of space saving wrought by dehydration, in terms of ships. Tomorrow's super-planes may thus haul equivalent of shipload of food for strategic uses.

Comprising 26 active and 27 associate members as of Sept. 1, the National Dehydrators Association is playing a leading part in dehydration research including such phases as raw stock purchases, processing, packaging and transportation. The specific requirements of packaging and transportation called for by the development of air transport are scheduled for special study awaiting the time when the production of air freighters allows large-scale food transportation.

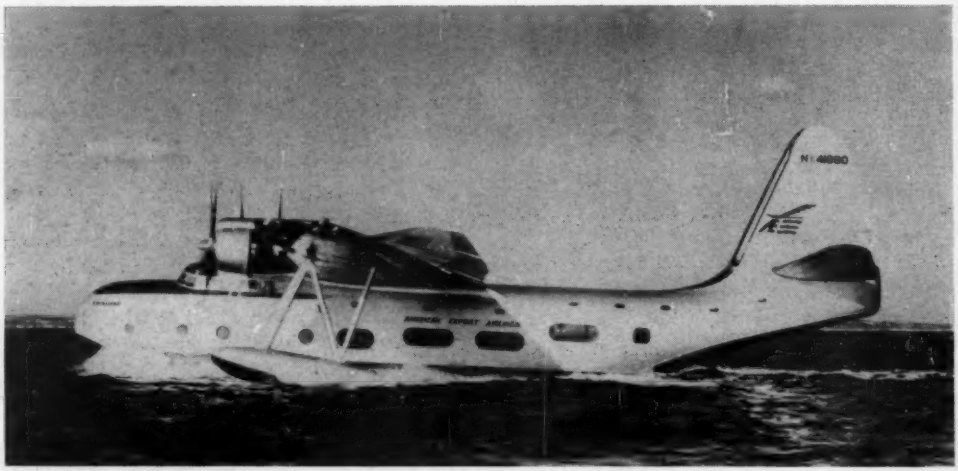
According to experts in the dehydration field, truly large-scale air transportation of dehydrated foods must certainly develop at the close of the war when exhausted people throughout the world will be looking to North and South America for food, clothing and medicine. When this occurs, the air facilities formerly used for war will be available for this vitally needed job.



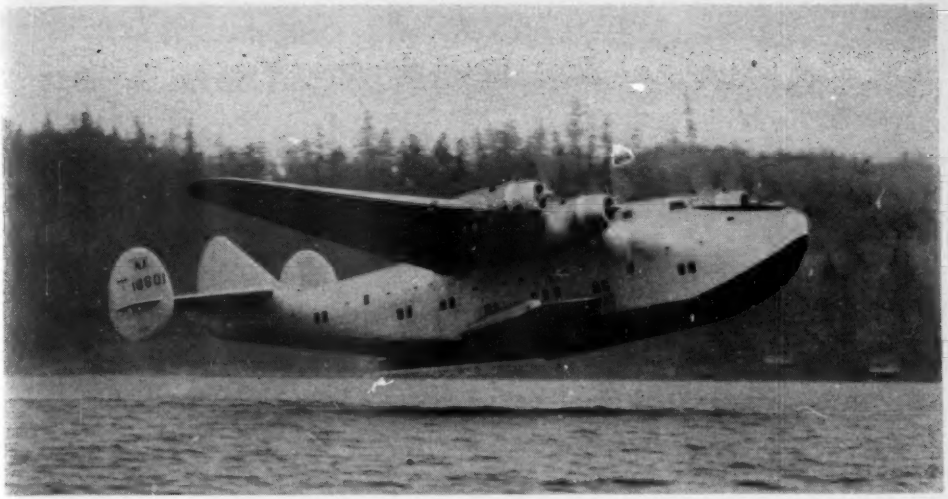
Official U. S. Navy Photograph

Today's Cargo Planes *Today*

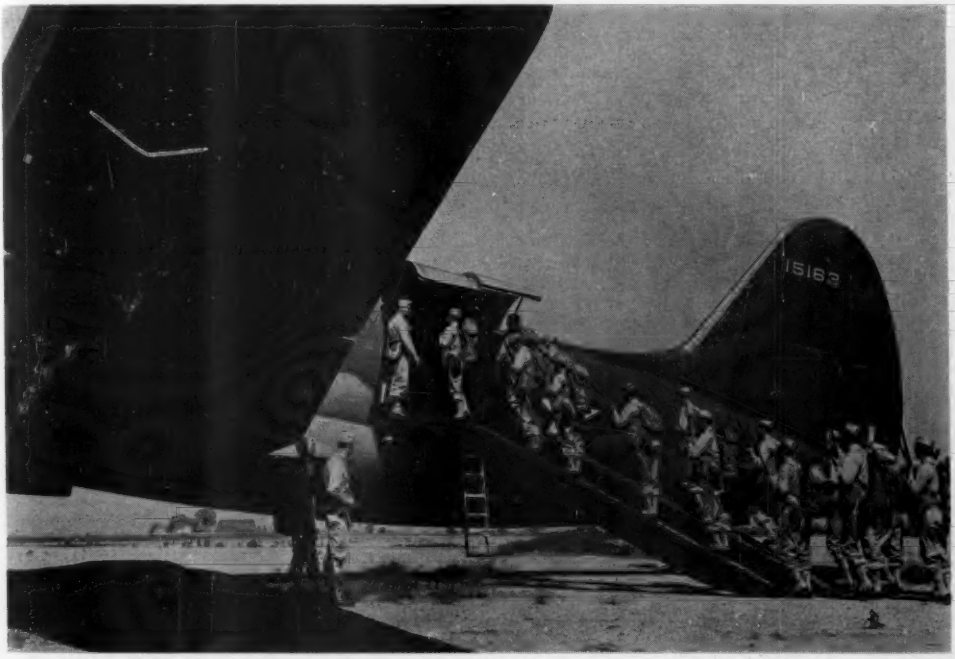
CARGO PLANES—*today—for today's cargoes.* That, as Consolidated Aircraft Corp. points out in its big, timely newspaper ads, is "the immediate problem." AIR TRANSPORTATION presents here a portfolio of pictures of the major types of planes which are carrying today's war cargoes, or will be very soon. *Above:* the Navy's new Martin XPB2M-1, the *Mars,* world's largest flying boat. As a troop transport, it could carry 150 men and arms, since the cubic content is equivalent to a 14- to 16-room house. Below and on the following pages are a dozen other significant examples of *today's* cargo-carrying planes—most of them in actual daily operation.



ALREADY FAMILIAR to transatlantic wartime travelers is the Vought-Sikorsky VS-44-A flying boat, perhaps better known by the name of *Excalibur,* first of its type to fly the Atlantic for American Export Airlines. It weighs 57,500 lbs., flies non-stop to Foynes, Eire, sleeps 16 passengers, can carry 40 on a daytime flight. Its range is 3,000 miles at 200 miles an hour.



THE FAR-FAMED CLIPPERS of Pan American Airways, known to aircraft makers as the Boeing 314, have long since carved a place in air history as carriers of cargo as well as passengers. Nine are in PAA service. Three more fly for British Overseas Airways. They can carry 89 persons each, cargo in proportion—but carrying capacity, of course, also varies with distance that must be traversed without refueling. They weigh 42 tons. They are the "world's largest passenger planes," but only the Armed Forces know how much freight they are hauling today.



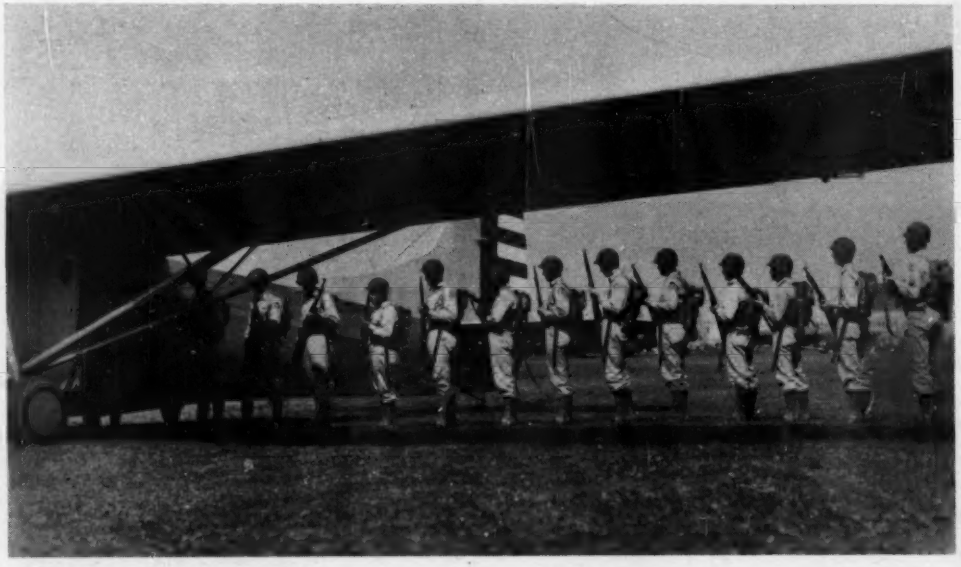
MOST PUBLICIZED TRANSPORT now in production is the Curtiss C-46, the Commando already in service as a military cargo transport. Close-up shows graphically its size as air-borne troops climb aboard and make ready to go aloft. It carries scout cars, too.

THE BIG CARGO-CARRYING capacity of the Curtiss Commando is shown even more strikingly in this view of a detachment of troops and one jeep in front of the plane.

First designed as a luxury passenger transport, before U. S. entry into World War II, the Commando is the largest two-engined military cargo plane in existence, so far as is known. Its frame is designed to hold the deadweight of heavy army cargoes, such as artillery, tractors, trucks, aircraft engines. It weighs 25 tons, loaded. It carries 50 fully equipped air infantrymen, according to *Business Week*, or their equivalent in cargo.

Powered Planes or Motorless Gliders?

Both Have Vital Role in Today's War and Tomorrow's Peace



FLYING FREIGHT TRAINS of the future, almost every authority agrees, will employ gliders as an indispensable factor in increasing the load-hauling capacity of powered planes. Closely guarded are nearly all details of the Army's glider program. But here's an ace entry: Waco's XCG-4 model in a Wright Field demonstration. It carries 15 men or their weight equivalent.

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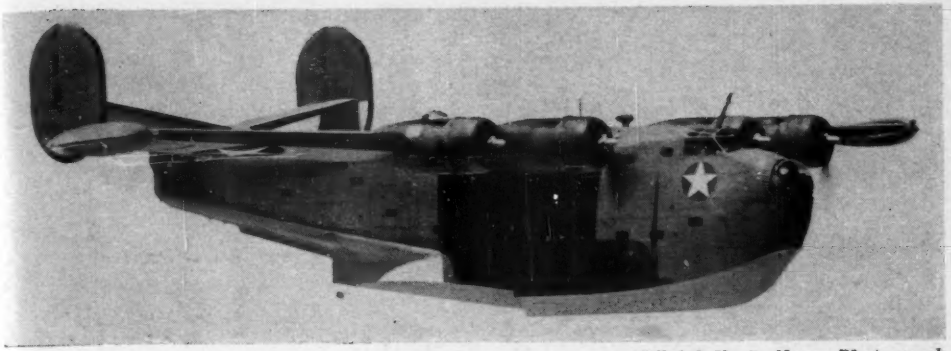
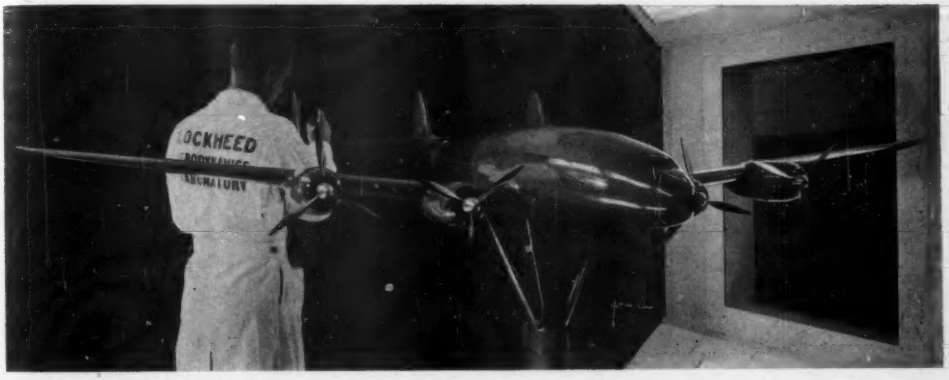
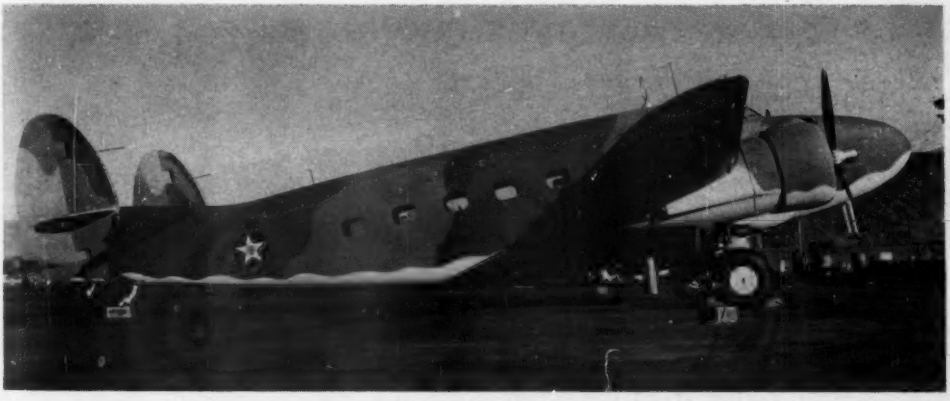


Official U. S. Navy Photograph

SKY FREIGHTERS are no dream of the future, says Consolidated, pointing to its Navy flying boat, PB2Y3, the Coronado. It weighs 33 tons, has four engines. It's ferrying cargoes across both oceans now, though designed primarily for the war use of the Navy.



STILL SO SECRET only wind-tunnel-model photos are released is Lockheed's Constellation. Howard Hughes and Jack Frye call it their brain-child (*see page 33*). It's to weigh 40 tons.

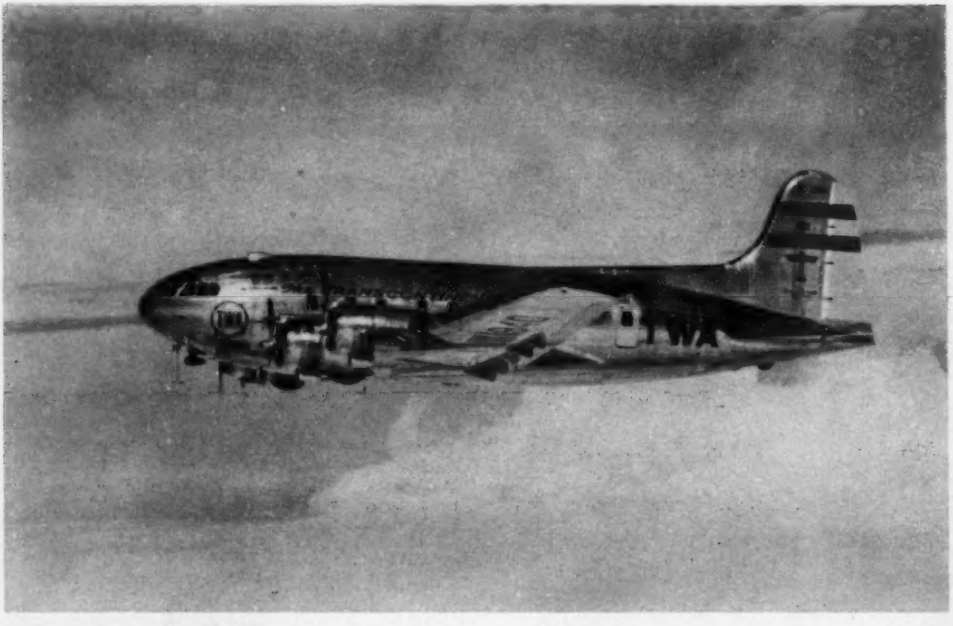


SMALL BUT FAST is Lockheed's Lodestar, already in air transport use in the U. S. and abroad for several years. In one, President G. T. Baker, of National Air Lines (*see page 38*), set a transcontinental speed record of 9½ hours in 1940. Speed at 16,700 ft. nears 300 m.p.h.

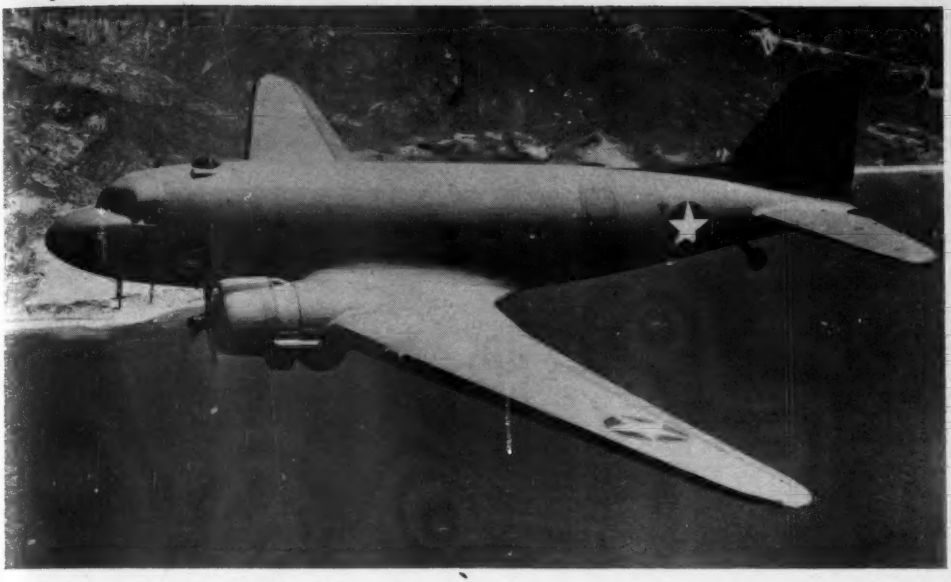
HAD THERE BEEN no war, you might have been riding the Douglas DC-4 on most of your air traveling. Now it's converted, renamed the C-54, and in full war production. Its details are secret, but Douglas proudly calls it "commercial aviation's largest, fastest and most important contribution" to the nation's service.

Luxury Liners Now Haul Cargo

These and Other Familiar Craft Have Gone to the Wars

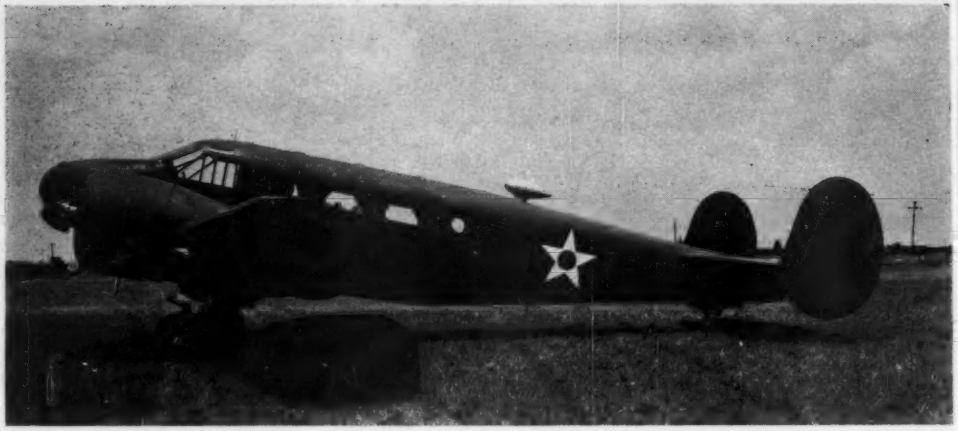


TWA-TRAVELERS DID ride on this one—the famed Boeing Stratoliner, many of which are now in Army service. A four-engined, 22½-ton plane, the Stratoliner was probably the most advanced transport in general U. S. service prior to Pearl Harbor—one of the few U. S. land-planes with enough range to take on some transoceanic jumps.



THE OLD RELIABLE Douglas DC-3, in its new military version, is adding new laurels to its worldwide record for dependability as the Douglas C-47. Another and very similar military version, the C-53, serves as a paratroop carrier. It has long been in production at a relatively high rate. The ships of its type in Army service are carrying both personnel and cargo.

ONE OF THE EARLIEST twin-engine passenger transports in regular U. S. service was the Boeing 247. Early in the U. S. experience in the war, virtually all of them were commandeered by the Government for carrying rush cargoes. Not shown in this portfolio is the most familiar Boeing of them all, the B-17 series or the Flying Fortress. Primarily a bomber, the B-17's have done yeoman cargo-carrying service already on many fronts.



BEECHCRAFT'S C-45A is labeled a "personnel transport" by the Army, but often functions as a cargo-carrier as well, especially when light cargoes rate priority in emergencies.

Watch future issues of AIR TRANSPORTATION *for more news and pictures of the air cargo planes of today and tomorrow. Naturally, most technical details of all of these and forthcoming aircraft are military secrets but all who are interested in the rapid movement of merchandise should become familiar with these—the cargo-carriers of today. Many of them may well still be important movers of goods after the war, along with the larger planes that are now in the blueprint and experimental stages.*

Harris, Pioneer of Panagra, at Work on Army's Air Cargo

Pan American-Grace Airways has accepted the resignation of its senior vice president Harold R. Harris, who has been commissioned a colonel in the Army, to be stationed in Washington as plans officer on the staff of the Commanding General of the Air Transport Command, thus making him one of only three who have achieved this rank from civilian status.

Col. Harris has been Chief Operations Officer of Panagra, a post which he secured as the originator of the airline while working in Peru in 1928, as Manager of Duff Daland Dusters, a pioneer cotton-spraying operation.

Col. Harris is a veteran of World War I in which he was a pilot-officer with the group of Americans who trained in Italy to use the famous Caproni bomber at Foggia, along with Major Fiorello La Guardia, now mayor of New York. He retained his interest in Army aviation and is remembered as one of the builders of the first lighted airway in the United States, an 80-mile stretch between Columbus, Ohio, and the Army's experimental field at Dayton. But it was from his station in Lima that he began working on a plan to supply air transport on an international scale to the west coast of South America.

In 1927, the year in which Pan American Airways originated, he called on the late Richard Hoyt, partner of the banking house of Hayden-Stone, who had backed the commercial cotton-dusting company with which Harris had been working. Hoyt was a director of Pan American and proved his interest in Col. Harris' plans by bringing him in contact with Juan T. Trippe, president of Pan American, and executives of W. R. Grace & Co. From these talks there was born Peruvian Airways Corp. which shortly became Panagra.

From the short domestic operation between Lima and Talara which Col. Harris supervised on Sept. 15, 1928, he has seen it grow to its present stature—an airline system operating over 8,000 route miles in 8 countries, serving them by daily schedules from the Canal Zone to Buenos Aires, giving domestic services to Ecuador, supervising the national operations of Bolivia through Lloyd Aéreo Boliviano, and flying the Andes regularly over 4 different routes. During 14 years he has seen it pass through the phase when only mail could be carried to its present average of more than 5,000 passengers and tens of thousands of pounds of express monthly.

Here you see how flying freight cars can be loaded for inland transportation. This one is a plane of the Douglas DC-3 type.

Flying Freight Cars

Will They Win the War?

By Frederick L. Collins

Reprinted by special permission from the Oct. 10, 1942, Liberty

WHEN Japan swooped out of the Pacific skies into the war, she increased the number of enemies to be fought by only one. But she created a war of distance, a kind of war that demands mass transportation. We must not only get our men to to the ends of the earth; we must continue to send them food, clothes, weapons, ammunition. To take care of a single army division in Australia, we must ship 200,000 tons a month.

At home the railroads are doing a magnificent job. But with production of war materials in some lines nearly 30 per cent above even the President's schedule, and with available rail equipment very little above peacetime needs, the trainloads are overloads. The trucking situation is even more acute. We have great trucking freight lines which last year operated over 700,000 vehicles and carried over 50,000,000,000 ton-miles of freight. Even so, our trucks cannot carry the war load.

The nation's shipyards are at last beginning to step up production. The records of some of them are remarkable. In time they may all produce the President's quota. But it is an undetermined question whether we can ever build enough ships to fight the "Battle of the Seven Seas." There will remain the submarine menace and, perhaps, the time-wasting necessity of detouring around whole continents. From New York to Alexandria, Egypt, by direct route through the Mediterranean is approximately 5,000 nautical miles; but when the Patrick Henry, first Liberty ship to come off the ways, sailed into Alexandria harbor with 10,000 tons of war supplies, she had traveled nearly 12,500 miles by way of South Africa, the Red Sea, and the Suez Canal.

The absurdity of this sort of thing was soon borne in upon us. To fight a modern war in which speed is vital depending solely on cargo ships dawdling over 12,000-mile supply lines could court only disaster. By comparison with our fast-moving enemies, it put us right back in the sailing-ship days.

In fact, the whole United Nations transporta-

tion situation might be considered hopeless if really important help were not already on the way—coming out of the air.

Obviously, a cargo vessel which makes at best ten or twelve miles an hour is no vehicle to operate successfully even a 6,000-mile supply line when a cargo airship could make twenty-five trips over such a route to the surface ship's one. When this fact finally sank in, the transportation bottleneck was as good as solved.

Why it hadn't happened earlier no one seems to know, except that we North Americans have always looked on the airplane as a luxury. And the public at large has stayed on the ground. So has freight.

Latin Americans, on the other hand, have regarded the plane as a beast of burden and have used it as such. The first thing they do to the secondhand planes they buy from North American lines is to tear out the seats, toilets, and stewardesses' quarters, put in strong metal floors and walls, and rig up huge hatches in the roofs. Converted thus into flying freight cars, these planes carry heavy machinery and supplies into the interior and fly back loaded with raw materials. The system works wonderfully. And within the last few months the Pan American-Grace interests have installed a regular cargo service over a 1,668-mile route connecting the Panama Canal with the west coast of South America. The possible use of such a service in the event of attack from the Pacific is obvious.

As early as 1939 a Californian named Babb thought of popularizing the flying freight car in the United States, but little came of his idea until the war came. Even the army had only forty-two such planes before this war. Now it is operating "the biggest air-freight line in the world."

It began, as the Latin Americans did, by converting ordinary commercial passenger planes into transports capable of carrying both men and equipment. Used chiefly on the home front to supplement the hard-pressed rails and trucks, the flying freight cars were as great a success, in their more modest way, as the Flying Fortresses. The only trouble was that those commercial planes weren't large enough.

But much larger passenger planes are already on the way and will in time be converted to military use. Lockheed has been working for more than two years on a leviathan designed to carry fifty-seven passengers and a crew of seven but capable of carrying twice that number. Powered by four 2,500-horsepower engines and boasting a cruising speed of 283 miles per hour, a good 100 miles per hour higher than most transports, this Lockheed wonder plane is the ideal type for the rapid movement of troops.

This plane, which was partly designed by Howard Hughes, is the one he and Henry J. Kaiser plan to turn out in great numbers, once they are given the opportunity.

That whole armies can be moved by air was proved by the Nazis in their successful attack on Norway. The same tactics in the Mediterranean were largely responsible for the Nazi armies' comeback in North Africa.

The new Lockheed not only is larger and faster than any Junker transport Germany possesses, but can fly much farther without stopping to refuel. It has a range of 4,000 miles and can cross the continent in eight and one-half hours. Its sponsors estimate that forty such planes could transport 16,000 troops to Alaska in twenty-six hours, 7,500 to Hawaii in forty-eight.

Next, transport and supply experts began to look enviously at huge experimental bomber planes like Douglas B-19 and Martin 170, the world's largest flying boats. A cargo plane the size of the Douglas B-19 could carry a load of twenty tons, or as much as a railway freight car. Forty-five thousand such planes, because of their greater speed, could do the work of the nearly 2,000,000 freight cars in the United States today; 40,000 of them could carry the load now carried by all the surface ships of the United Nations.

These figures are vouched for by Grover Loening, famous consulting engineer of the Grumman Aircraft Engineering Corporation, winner of this year's Distinguished Service Award for aeronautical design. He was confining his calculations to planes of a type already in existence. Glenn Martin goes further. He declares that he can build a cargo airship that will carry eighty tons to Europe at 300 miles an hour. Only eight or nine thousand of those ships would be necessary to equal the cargo capacity of the surface merchant marines of the entire world!

The giant airship Martin has already built for the Navy, popularly called the Mars, boasts a hull as capacious as a fifteen-room house and carries 125 men with full military equipment, plus a 13½-ton tank. His factory is now working on a plane twice as large and weighing 250,000 pounds, and his imagination is already toying with the idea of a 500,000-pound beauty.

Most of these outsize planes which have already been built were designed as superbombers. As such they fulfilled all requirements except one—speed. Nevertheless, they emerge as the hope of the world, not as superbombers but as

supertransports. How we wish we had hundreds of them instead of three or four!

The factors which have, until recently, blocked the building of large fleets of giant transports are time, money, and materials, all three so urgently needed for the building of combat planes. But now along comes Curtiss-Wright with its mammoth C-46, the largest plane ever built solely for transport purposes, which, because it can be made mainly of plastics and plywood, can be quickly duplicated at only a fraction of the cost of a similar all-metal plane.

The time element has been further minimized by the automobile industry, which has long been turning out huge quantities of aviation engines and subassemblies of parts for the regular plane manufacturers. Last summer the first entirely automotive-built plane flown in this country, the B-26-C, settled down out of the air at Omaha, Nebraska. From now on, they'll be coming fast.

For training purposes the plywood plane has proved a life saver to the production program. There is no reason why it should not do likewise for the transportation program. At any rate, if used as a troopship, the C-46 can carry from fifty to a hundred men, according to the amount of equipment they require. If used as a cargo ship, its makers state that twenty-one C-46s, making three trips a day from India, could replace the 4,650 trucks that used to carry supplies to China over the Burma Road.

The extent to which figures like these might be increased if it were found practical to use in transoceanic flying the locomotive planes hauling trains of gliders is not known. Such procedure, however, is quite within the bounds of possibility. In fact, the Nazis are already operating this system over the Mediterranean.

The regulation transport plane, the only one with a motor in it, acts as the locomotive, hauling from three to six gliders in single file like the cars of a land train. The gliders the Germans us carry two tons of supplies or fifteen men with full military equipment. It may be a long time before similar aerial trains bearing United States insignia cross the oceans, but probably before these words are printed they will be crossing the continent from coast to coast.

That the army is counting on gliders to transport troops not only into enemy countries but into battle is apparent in the training of pilots for this specialized job. Whole regiments of troops are being trained accordingly. Gliders can transport wounded on their return trips, and can be picked up and dropped by planes that need not touch the ground.

Glenn Martin, builder of the* Mars, *can claim the distinction of being first "newsboy of the air." The scene is Fresno, Calif., the time 1912, and young Martin is about to take off with a bundle of "Fresno Republicans" for Madèria, 24 miles away. He made the trip in 25 minutes.

Whether the new big troop and cargo planes travel solo or in trains, they have still another immeasurable advantage over ships. Transport ships must be convoyed by both warships and air patrols. Transport planes, requiring no naval protection, release large numbers of combat ships for active duty. And if there had been enough warships free from Atlantic and Pacific convoy duty to protect an army crossing the English Channel, there might well have been a second front in France some time ago.

The aviation industry has long realized what would be expected of it. If the airplane does away with the war's greatest bottleneck, it will be because farsighted and patriotic American airplane builders spent their own time and money to be on the alert when the alarm sounded.

By the same token, the executive staffs and the flying and mechanical personnel of the great commercial air lines are certain to be the principal factor in assuring the successful operation of these aerial life lines. For the army transport job is not primarily a military one. Without question, the men who have had actual experience in commercial flying will form the nucleus of the new transport service, both as

AIR TRANSPORTATION
AIR CARGO • FREIGHT • EXPRESS • MAIL
DOMESTIC • INTERNATIONAL

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flyers and trainers of flyers. In fact, the government may decide to dump the operation of the whole venture onto the broad shoulders of the air-line organizations.

In the case of the ferry and transport service to Africa inaugurated a year ago, Washington very wisely entrusted its installation and operation to Pan American Airways, whose lines already stretched three-quarters of the way around the globe. The ferry, under Pan Am management, has been a huge success—and no wonder, for in three years the company's own Atlantic Clippers had carried more than 18,000 passengers and flown more than 3,000,000 miles wholly without incident.

In the Pacific, also, army and navy officials have been using Pan Am planes and crews rather than install supply lines of their own. Even before Pearl Harbor, Clippers operating out of San Francisco to Honolulu, Midway, Wake, Guam, Manila, and Singapore carried some 12,000 ton-miles of vital freight every week, and since Pearl Harbor the big airships have been continually used on long-distance special missions.

There is something exhilarating about all this co-operation between peacetime and wartime organizations enlisted in a common cause. There is a kick to be gotten, too, out of the fact that this huge world-wide communications system will be with us long after the war is ended. It may be the most important single factor in our postwar life.

But the important thing right now is that we are overcoming that bottleneck!

Panagra Starts First All-Air-Cargo Service

Two big steps toward more efficient air transport in South America for both shippers and travelers were taken last month by Pan American-Grace Airways.

One was the inauguration between Balboa, Canal Zone, and Lima, Peru, of the first scheduled commercial all-cargo air service ever certified by the U. S. Civil Aeronautics Board. Already, Panagra officials say, the service over the 1,678-mile portion of Panagra's main line has aided in moving large quantities of non-priority cargo, including machinery, tools and other supplies urgently needed in western South America but crowded out of regular passenger-mail-express planes where wartime priorities reign supreme.

For the present the cargo service is being given by two Douglas DC-2 transports switched to the main line from domestic service in Ecuador.

Panagra's other expansion was the launching of a new transcontinental passenger-mail-express link, taking off eastward from the main west coast line at Antofagasta, crossing the Andes and striking the central South American lines at Salta, whence planes will proceed to Buenos Aires.

The new trans-Andean link, also, will serve vital cargo-carrying needs of the district around Salta to which a railroad is being arduously pushed from Antofagasta. Panagra may soon be carrying out to tidewater strategic cargoes of tin, tungsten and copper being mined in this area, since little hope for early completion of the rail line against wartime material shortages is held out.

Air Express Soars Over 1941 Figures

Nationwide air express flown by commercial airlines marked up notable gains for the first half of 1942.

Shipments for the six-month period totaled 677,147, an increase of 9.3 per cent over 1941; poundage was up 90.2 per cent for a total of 8,791,635 pounds; gross revenue increased 102 per cent. Average weight of shipments has doubled.

All previous records for weight were smashed in June, when 1,751,620 pounds were handled,

Air Cargo in World Economy

A Longtime Authority Speaks Briefly of Post-War Future

By WILLIAM A. M. BURDEN
Special Aviation Assistant to the Secretary of Commerce

IF there is one lesson this war is demonstrating above all others, it is that aviation is remaking the world. The future of the world—socially, economically, and politically—is interwoven inseparably with the future of aviation. The masters of the air will be the masters of the planet.

Obviously, the tremendous stimulus which the present conflict has given the technical development of aircraft will greatly shorten the period which might otherwise be required fully to exploit the revolutionary possibilities inherent in flight. Although I recognize that prophecy is always hazardous, it is not difficult to foresee the general outline of the international transport system which will be at least *technologically* within our power when peace finally comes:

Perhaps the simplest way to visualize it is to draw a circle on the globe with a radius equal to the distance which a post-war airliner or air freighter will be able to cover in, say, 18 hours. Such a circle centered on New York, for example, will reach to Santiago, Chile and to Buenos Aires. It will include all of Europe. It crosses Africa at Cairo, goes way beyond the Dardenelles and Moscow; and almost touches Irkutsk, in Siberia.

Passengers will be able to leave New York late one afternoon, and arrive at any one of these destinations during the following morning. And so will mail, express, and freight.

Such a spectacular revision in our accepted mode of international exchange is without question *technologically* possible. But is it economically feasible? From a plain dollar and cents point of view can it be justified?

From a broad national point of view, I think the answer is unquestionably "yes." Not because air transportation of passengers and freight can in every instance meet the competition of surface travel on a competitive price basis. Indeed, perhaps not for a substantial part of the total movement of world trade, though this remains to be determined. But *because aviation is so highly charged with the national interest.*

In their recent book, *The Problems of Lasting Peace,* Herbert Hoover and Hugh Gibson have pointed out that "the sole possessor or possessors of military air power could stop anyone from going to war. And international action to enforce peace would be enormously simplified." Military air power, however, depends in part upon the availability of great numbers of cargo planes and equipment for the transportation of air-borne armies, including paratroops and supplies of every description.

Until the time comes when the possibility of world war no longer exists, huge air fleets designed to carry a substantial share of the nation's and the world's cargoes over international trunk routes will constitute a national asset of enormous potential value.

The future security of our country against some sudden, paralyzing attack from the air may largely depend on our air transport fleet, and on the manufacturing capacity, research superiority, and skilled personnel which it has helped to maintain.

From another angle as well, the establish-

A longtime authority on international aviation, Mr. Burden was appointed to his present post of Special Aviation Assistant by Secretary of Commerce Jesse H. Jones on July 7, 1942. Until then he had been a vice president of Defense Supplies Corp., in charge of American republics aviation. In 1940 he prepared an exhaustive study of Latin American air transport for the Council of National Defense. Mr. Burden is a prominent member of the Council of the Institute of Aeronautical Sciences.

ment of new channels of international trade will contribute importantly to solving post-war problems. For it will open up new frontiers for pioneering, make possible the exploitation of vast areas throughout the world now dormant or undeveloped, and offer new employment to millions. Its ultimate significance in terms of human relationship is difficult to exaggerate.

Facing a disorganized world economy, aviation may well prove to be one of the most persuasive instruments of national policy, serving ultimately as a great unifier and integrator —politically, socially and economically. Its influence in the field of international trade is certain to be immense and profound, as the United Nations learn to turn this revolutionary new technique toward socially beneficial ends.

Cargo Planes to Speed Inter-American Freight

SWIFT cargo planes will soon wing their way across the rugged mountains and roadless jungles of South Ametrica with shipments of strategic materials needed for United Nations war production.

These air cargo planes also will speed the exchange of essential commodities between North and South America. Planes will carry on their return journey to the southern republics cargoes of medicines, chemicals, machine tool parts and other necessary merchandise. Old transport planes will be used until newer planes become available.

Many commodities can be efficiently carried by planes, overcoming the obstacle of ship shortages. Rubber production and collection on the upper Amazon River will offer opportunity to exploit the advantages of cargo planes over other methods of transportation.

Rubber can be moved by plane from Iquitos, Peru, near the headwaters of the Amazon River to almost any point of destination in the United States, in fewer hours than it would require days to move by freighter.

Iquitos is situated about 2500 miles from the mouth of the Amazon. From this point a river steamer takes from twelve to fourteen days to make the trip from Iquitos to the seaport of Belem, at the mouth of the Amazon. At Belem cargo is transferred to freighters which require fourteen days more to reach New Orleans. This does not take into account the time lost waiting for connections at Belem and prolongation of voyages by as much as 50 per cent due to slow-moving convoys or devious routings to avoid Nazi submarines.

A transport plane can make the hop from Iquitos to Miami in one day—from sun-up to sun-down, with two intervening stops for fuel at such points as Maracaibo, Venezuela, and Port-au-Prince, Haiti.

Transportation experts claim that air freight could be carried over this route at a cost of not more than seventeen cents a pound, provided full cargoes were offered in each direction. Costs are now of secondary importance, with United States war plants needing vast quantities of raw materials.

Many communities in South America are today better provided with landing fields than they are with railroad stations. Landing fields are scattered throughout the hinterlands of Brazil, Bolivia, Peru and other South American nations in places where inhabitants have never seen a railroad train.

Every city of importance from Mexico as far south as Punta Arenas on the Strait of Magellan has a landing field. Many of the larger ranches and haciendas also have private landing fields. Most of these landing fields are small according to United States standards and are well adapted to the older and slower types of planes which do not require large landing fields.

Recently, a new commercial cargo plane service was started by the Pan American-Grace Airways on a weekly schedule between the Panama Canal Zone and Lima, Peru. Two Douglas transport planes have been converted into cargo carriers by having their seats removed. These planes have a payload capacity of 3,300 pounds each. The cargo on the initial flights consisted of machinery, tools and other badly needed merchandise. An unusual item shipped from Peru to Colombia was a cargo of yeast.

The past month has seen new records set in aeroplane travel between North and South America in passengers carried and pounds of air cargo. During the first quarter of 1941, 86,419 passengers were carried between the American republics. During the same period of this year they totaled 97,414.

Since the entry of the United States into the war, there has been an 800 per cent increase in airmail and express traffic.

A classification of the air-borne travellers shows them to be principally military, medical and educational missions and business executives. Pleasure tourists are in the minority because space for such travellers is strictly limited. After the war, however, the vast networks of air transportation furnished by systems on both continents undoubtedly will play a large part in serving those travelling for pleasure.

Is It True What They Say About Air Cargo?

AIR TRANSPORTATION *Polls the Presidents of the Nation's Leading Airlines on Air Shipping's Future*

WHAT ABOUT cargo-by-air? Is it a practical reality, just around the corner, or one of those things that still belong in the Sunday supplement?

AIR TRANSPORTATION has its own ideas. But to give its readers a cross-section of the opinion of a group of men who—more than any others in the U. S.—should know most of the answers, AIR TRANSPORTATION last month polled the presidents of most of the leading domestic airlines. Their views are presented here:

American Export's Coverdale Visions 'Unlimited Expansion'

By W. H. COVERDALE, *President American Export Airlines Inc.*

AVIATION development, under existing wartime conditions, is accomplishing in a few years, a result which would have taken several decades, under normal peacetime development. The progress made during the last three years proves that there are no structural or aerodynamic limits to the size of an airplane. Indications are that present commercial speeds can be doubled, trebled, or even quadrupled. Planes of tremendous size are in prospect which combine loading characteristics, range and speed in such a manner that economies heretofore undreamed of are certain to be realized. Huge cargoes can then be transported to far-distant points in a matter of hours as against the weeks which are required by surface transportation facilities. This limit of expansion depends upon the initiative and determination of individuals, and groups of individuals, throughout the various nations of the world, and upon sound support granted to such individuals by governments of their respective nations. Unlimited expansion in the transportation of cargo, mail and passengers by air is assured.

W. H. COVERDALE

AA's Kemp Visions Super-Freight Planes As Post-War Carriers

By A. N. KEMP, *President American Airlines Inc.*

EACH day that passes during this global war drives home more emphatically the fact that the measure of distance in the future will be hours and minutes rather than miles. When this holocaust is finished the world will have a new concept of transportation and the airplane, having the benefit of greatly accelerated wartime development, will be the basis of this new concept.

A. N. KEMP

It is not visionary or impractical to foresee the day when ice-free harbors will no longer be the backbone of a nation's commerce. The airplane knows no physical boundaries, being able to traverse sea, desert and moun-

tain without interruption in the universal ocean of the air.

Thus the harbor of tomorrow can just as easily be located 1,000 or 2,000 miles inland, dependent only upon the industry and economic importance of the region surrounding it.

Shippers in the post-war era will have at their disposal the finest and best trained air transport organization in the world. Today the nation's airlines fly thousands of pounds of all types of freight back and forth across the U. S. for the Army. The only limitation as to the type of cargo they carry is the size of the equipment available at this time.

Now air service is being expanded for military purposes to all corners of the globe, under the direction of the Air Transport Command. Shipment size limitations will vanish as larger and larger planes are developed.

Apart from the military activity referred to above, American Airlines is transporting an average of 1,000,000 lbs. of air express and freight per month on its regular schedules. A large part of this total is material vital to the war program, the majority of which travels on priority.

Immediately after the war this vast organization will be available to shippers everywhere. Faced with the problem of supplying material for the rehabilitation of the world, American business will find in the air transport industry of the nation facilities to deliver these goods.

Using hundreds of planes already built at the start, and later the super-freight planes, which a geared-up aircraft industry must surely produce, deliveries of air cargo will be accomplished in hours. The air transportation industry of the nation, devoted now to expending its every effort on winning the war, foresees and accepts its post-war duty. We will be ready.

Putnam Sees Inland Cities as Future Foreign Trade Ports

By CARLETON PUTNAM, *President*
Chicago & Southern Air Lines Inc.

The almost fantastic developments in production and design of transport planes are paving the way for a post-war era of incredible possibilities. All of Europe, all of Africa, all of North and South America and parts of Asia will be our neighbors within reach within 24 hours.

In 1928, under the limitations of ground travel, it was not possible to reach more than 70,000,000 people in a day's travel. In the post-war period, based upon facts and not fancy, those 70,000,000 persons will be increased to no less than one billion or more persons. Half the entire world's population will be reached within 24 hours by air.

CARLETON PUTNAM

Undoubtedly, the development of air cargo will revolutionize commerce and will make inland cities important foreign trade centers. Chicago, St. Louis and Memphis, for example, can become export centers as vital as the seaports of today. The potentialities of inland cities as trade ports, demand the financial, commercial and cultural consideration of every city in the U. S. so that the tremendous and historic changes which the airplane is bringing today may be carried forward after the war.

Too often we have considered the airplane merely as a unit capable of transporting a small group of human beings and a few hundred pounds of mail and express. But the cargo planes now rolling off the production lines for military purposes and the commercial planes planned for the post-war era are a different story. For example, one of the largest railroads owns 80,000 freight cars. On the basis of actual ton-miles carried in a recent year, only 1,150 airplanes of a type being built today could carry an equivalent amount of freight in one year. Match 1,150 planes against our airplane production capacity and it means a relatively small output.

We're just beginning to realize the meaning of the world-wide ocean of the air. Not only does the airplane travel faster, but the airplane is the only vehicle that can travel the shortest distance between two points on the earth's surface via a great circle course. For example, the straightest route from Tokyo to the Canal Zone is not across the Pacific at all. It is directly over the Aleutian Islands, Seattle and Denver.

Today's relationships in the world at large have been maintained through seaports bordering on oceans. But in the air ocean of post-war days inland trade centers will be as much ports of the world trade lanes as New York is a seaport today. Every community will be a port with direct access to every other community in the world. We should begin at once to adjust our thinking to it that we may not be found unprepared for the dawn of the air age.

TWA's Frye Sees Ohio Getting Rubber by Air Direct from South America

By JACK FRYE, *President*
Transcontinental & Western Air Inc.

MOST of the nations of the world will become America's next-door neighbors in the post-war Air Age, when vast fleets of sky giants make regular ports of call, bearing processed goods, raw materials and passengers. Today's planes will be mere pygmies in comparison with these super-transports—so large and powerful that a few of them may perform as much service as an ocean liner.

JACK FRYE

These huge planes will be capable of flying great distances nonstop, their routes criss-crossing the globe and in some instances following the most direct line between populous points, even though it may lead them across the Poles. Weather or hostile terrain will not deter them, for they will be able to out-maneuver the forces of nature.

Utilization of the "air ocean" for transportation makes every community in the world a port. There is no shoreline in this air ocean—the harbor is any space large enough to land a plane. For example, *rubber from South America need not be carried to New York, then sent by surface transportation to a tire factory in Ohio. In the future it can be carried by air from South America and unloaded alongside the tire plant.*

Air freight, both domestic and foreign, will play a very important role in our commerce after the war. The transport plane is just coming into its own as a cargo-carrier in this country, although TWA experimented with an exclusive overnight air freight service between New York and Kansas City as early as August 1931. Only a short time ago, the Air Transport Command authorized the airlines to transport men and supplies "wherever needed" and has promised additional equipment to augment the fleet of cargo planes at present available.

The feasibility of this post-war service thus is being demonstrated daily as men and cargo are hauled by air on distant military missions with the same precision and casualness with which passengers, mail and express are being carried over domestic airline routes.

When this conflict ends, the entire world will be in need of consumer goods which in many cases must be transported over great distances. The plane will make trading available to hundreds of localities which have had none in the past because they lacked port, highway or rail facilities. Vast resources of inland areas, which have remained undeveloped because of surface barriers of transportation, will be tapped.

From the horse and buggy to the auto was one step. To the plane is another. In the future, business concerns may send their salesmen out to visit customers by plane, just as today they contact customers by auto and these new emissaries must be able to speak the language of their customers in foreign lands.

When the emergency is over, the airlines will be in the market for completely new fleets of the larger and faster planes which will then be available.

The Lockheed Constellation [*see pp. 18-24*], originally built for TWA, is a major step in the direction of tomorrow's super-transport. Original specifications of the Constellation, which Howard Hughes and I conceived, called for accommodations for 57 passengers and a crew of seven, with a range of flight and speed that would bring any capital in the western hemisphere within 16½ hours of the United States.

Aircraft manufacturers will have their hands full in constructing this merchant marine fleet of the air.

Then, there is the domestic picture to consider after the war. In this country alone there are still more markets to be reached. The entire country probably will have an intricate system of feeder lines connecting the smaller cities with one another and hooking them into main trunk lines. Planes of varying sizes and speeds will conduct this passenger and cargo service.

American Shipper Will Lead World's Trade By Air, Says Coulter

By WILLIAM A. COULTER, *President*
Western Air Lines

Because it is a military secret, the work of commercial airlines in speeding vital war cargo to its national and international ports cannot be

told. Needless to say, it forecasts one of the greatest chapters in the history of aviation.

WILLIAM A. COULTER

A pioneer in the field for the past 16 years, Western Air Lines is now putting forth every effort in a program to develop every air cargo potentiality, for the war has advanced aviation by at least 20 years, and air cargo is its main offspring.

Without hesitation I say that cargo planes in the future—camouflaged on war missions as they are today—will be one of the dominating factors of world commerce. Accordingly, they will play important roles in remolding the war-torn globe.

Since air cargo facilities will be within reach of every American shipper, financially and geographically, he will take the leadership in international trade.

Patterson, of United, Cites Air Express Anniversary As Signpost of Future

By W. A. PATTERSON, President United Air Lines Transport Corp.

AIR Cargo, in a broad sense, is by no means something new in commercial aviation. Actually the airlines are observing the 15th anniversary of air express service for it was in 1927 that the first commercial coast-to-coast express shipment by air was carried from New York to California by planes of United Air Lines.

W. A. PATTERSON

During 1941, more than 1,300,000 individual air cargo shipments were made over the nation's commercial airlines, and the total for 1942 is expected to exceed 2,000,000.

This year finds the airlines concentrating on the vital task of speeding war materials by air. With savings of from one to several days in transit of important shipments between production centers or war areas within North America, and correspondingly higher savings in time on shipments to overseas destinations, scheduled air cargo represents a very important contribution to the prosecution of the war.

The stimulation of the war, plus the faster tempo of civilian business which is likewise reflected in growing commercial cargoes aboard the scheduled airlines, indicates the increasingly important rôle air cargo is destined to play in the post-war world.

Gliders Seen as Hope Of Air Cargo Future By Colonial's Janas

By SIGMUND JANAS, President Colonial Airlines Inc.

The future of air cargo is dependent upon the solving of many troublesome problems. The present war effort is giving great impetus to the development of all kinds of transportation by air but it must be realized that this progress is being made without regard to cost, and with necessity and speed as the only requisites. When air cargo comes into its own it will only be after years of progress in the constructing of cargo airplanes capable of carrying great loads at a cost comparable to other types of transportation available. In my mind it is questionable whether this low cost can be obtained with the present gasoline engines used in aircraft.

SIGMUND JANAS

The transportation by air of perishable products from production origin to their markets will, in my opinion, be the first step in any real tonnage movement of cargo by air. We must not overlook the great possibilities of the glider as trailers on medium size power planes. With future development of the glider-trailer art I believe the aviation industry may make its first sound economic approach to the movement of cargo by air. By this method one powered plane, as a tow plane, will be able to carry many times its own payload by the use of glider-trailers. Each glider-trailer would require only one pilot and could be released while passing over airports intermediate between the source of production and the end of the flight market to be served.

Movement of cargo by air will come, and rapidly, but its commercial success will depend upon its ability to provide an all-round transportation service and not through simply being able to transport the highly perishable products.

I believe ultimately a much broader view will be taken of the transportation problem by airline operators and the Government and when air cargo really becomes an important adjunct to our commercial life, it will be through the cooperation of the airlines, the railroads, the bus lines and the steamship companies.

After this war our nation's economic life will be dependent in a large measure on our maintaining supremacy in the air in order to obtain and maintain our dominant position in the trade life of the world.

Pa.-Central's Monro Sees AT Serving Vital Need In Coming Air Cargo Age

By C. Bedell Monro, *President*
Pennsylvania-Central Airlines Corp.

IT was gratifying to learn of plans for the publication of Air Transportation, particularly since so much of it is to be devoted to the subject of air cargo.

Even experts in this field hesitate to predict the future of this rapidly expanding phase of our industry.

C. Bedell Monro

Our struggle for freedom points to the necessity of swift worldwide transportation of goods and materials and this is being accomplished daily by American planes and American pilots. The commercial application of what is being learned today from the war effort will be a foundation of international air commerce when peace is established. To keep apace with the progressive development of air cargo, our nation—and particularly its shippers—must have the facts presented as they occur and I sincerely hope that Air Transportation will help in this educational task.

We of Pennsylvania-Central Airlines have been engaged in air express carriage for a number of years and *the increases in poundage carried so far this year have been enormous.* Certainly this is a barometer of what lies ahead.

I congratulate the publisher and staff of Air Transportation, who have established their magazine with keen foresight and vision of the important future of air transportation, but who remain just as aware of its present.

Small-Parcel Era Passing, Real Cargo Flying, Says Woolman

By C. E. Woolman

Vice President and General Manager
Delta Air Lines

The war has given impetus to the development of one phase of commercial aviation which is frequently overlooked by the average American, who thinks of aviation in terms of transportation of passengers, airmail, and small packages. Only recently has the average American business man come to realize the practicability of transporting sizable shipments of freight by airplane at the rate of three miles per minute.

C. E. Woolman

While there is considerable secrecy surrounding the military air cargo service today, almost everyone knows that the Allied Armies are speeding critical war materials by airplane to every corner of the globe. The airlines of the nation are carrying such heavy cargo loads that it is frequently necessary to leave passenger seats vacant to meet weight requirements.

It is unquestionable that after the war air freight will come into its own. As air shipments increase, costs will decrease, and we shall soon see the day when airplanes will fly goods directly from factories to marketing centers. Loading problems and other difficulties which seem likely to loom up will certainly be solved quickly by an industry which has seen its chief development in the past two decades.

This comparatively new transportation system is certain to result in a relocation of distribution points, and will have somewhat the same far-reaching effects that came about when the railroad development shifted trade activities in many cases away from seaports.

Air-Shipped Goods Are 'Sold First,' Points Out Mid-Continent's Miller

By J. W. MILLER, *President*
Mid-Continent Airlines Inc.

WE have often called attention to the fact that air mail is read first because it is delivered first. In precisely the same way, materials sent by air are *used first*, or *sold first*, because they arrive first. Shippers who have used air express for day-to-day business have made peacetime capital of a wartime maxim, "The army that gets there first with the most is the winning army."

J. W. MILLER

These advantages of shipment by air are apparent to many business men. Their use of air express facilities accounted for the phenomenal rise in volume experienced in the past 10 years. Approximately 150,000 pounds of air express were carried in 1931. The total in 1941 was more than 20,000,000 pounds! Here was a business multiplied 133 times in 10 years, though airlines were giving major emphasis to attracting passengers.

This astounding volume increase is one of our best indications of what may be expected of air cargo in the future. Tremendous expansion is inevitable. The rate of expansion may well be at an even greater pace than in the past, for the world has become increasingly aware of the importance of swift transit. And war has made the world intensely more air-conscious.

The exigencies of conducting a vast war, meanwhile, have given added meaning to the capabilities and the potentialities of shipment by air. Developments in the field of air cargo which might have required years are now being brought to accomplishment in months. Wartime transportation is providing us with a vast proving ground for equipment and procedure which will have results of unpredictable magnitude in the post-war world. The tremendous requirements of service and supply to our armed forces over the entire world will necessitate the solution of countless problems which will pave many skyways for tomorrow's air cargo industry.

Unquestionably, the underlying speed and flexibility of air transportation make air cargo on a vast scale a "natural." Shipment by air is shaping, and will continue to shape the world, whether in war or in peace.

Continental Compares Air Cargo's Future With RFD Experience

By TERRELL C. DRINKWATER
Executive Vice President
Continental Air Lines Inc.

As a corollary to the all-out war effort being put forth by the airlines of America today, the airlines have been obliged to "go to school." With the assistance of the Army, they are teaching themselves and each other, through experience, the basic solutions to many of the problems involved in the transportation of cargo by air. In the rapid development of passenger business, unfortunately these problems were pigeonholed or overlooked by all except a few of the more farsighted people in the industry. Yet now all fully realize the terrific importance and impetus of air cargo.

TERRELL C. DRINKWATER

Continental Air Lines, serving primarily the Rocky Mountain region, is confronted with air cargo problems quite dissimilar from the questions which will have to be decided by airlines serving thickly populated areas. Through sparsely populated areas between isolated urban communities, the measure of Continental's public service in the transportation of cargo, as well as of passengers, lies in the substantial amount of transportation time to be saved in the delivery of cargo for a relatively few number of people as contrasted with a very small amount of time saved for a large number of people.

To this end we are confident that air cargo in the West will be developed as a result of public demand on much the same basis that prompted the establishment of Rural Free Delivery postal service to practically every small community or crossroads in America.

Cargo-by-Air Already Here, Braniff Holds; Costs Going Down

By T. E. BRANIFF, *President*
Braniff Airways Inc.

Cargo-by-air is constantly spoken of as though it were non-existent today. The facts are that this year the domestic scheduled air transport industry will probably operate between 20 and 30 billion pound-miles of air express. This represents an increase of more than 200 per cent over 1941.

T. E. BRANIFF

Admittedly, this is only a small portion of the total cargo movement of the nation, but it has been the source of invaluable experience to the airlines in sales, traffic, rates, way billing and manifesting, loading and handling. Additional experience in warehousing, dock handling, loading and securing heavier cargo for air shipment is being acquired in the operation of cargo contracts for the Army.

Cargo which moves by air express today is patently of an emergency nature. It must be at today's rates.

In our Army contract operation, we are learning that in the planes available today we are capable of producing a ton-mile cost of less than 20 cents. Volume and experience may reduce this to 15 cents. The vast bulk of freight moved in the country today is carried at a cost to the public of something less than one cent per ton-mile. The bulk of freight so moving is purchased, shipped and stored in such a manner and far enough in advance of use that it does not justify a premium for airplane speed.

The obvious problem, therefore, is the further improvement of the airplane or the development of lighter-than-air cargo craft, gliders or other similar and cheaper means of moving cargo through the air. Manufacturers have had little or no time to devote to the design of real cargo planes. Cost is not an important element in war, and before the war there was only a limited amount of money available either to the aircraft manufacturers or the carriers for experimenting.

Unquestionably, air carriers will eventually move tens of billions of ton-miles of cargo. How soon we do so depends upon how soon we win this war and enable engineers and designers to concentrate upon that problem instead of the problems which face them in the development of combat types of aircraft.

There is no question about the eventual development of higher wing lift capacity; greater horsepower output per pound of engine, consuming a lighter-weight, more efficient fuel; the coordination of air and ground cargo services including air express, air freight and forwarding services of various types; the creation of radio-controlled pilotless gliders which can be picked up and dropped off by an air locomotive in flight; the opening of inland ports and harbors for international traffic and other unforeseeable improvements and new ideas.

All these things will result in an air cargo industry operating in coordination with ground and water transport. They will come into being as soon as the mechanical and social problems involved can be solved. This may be rapid or it may be slow, but it is inevitable.

Shippers Should Start Planning Now, Urges Northeast's Solomon

By S. J. SOLOMON, *President*
Northeast Airlines Inc.
Director, Airlines War Training Institute.

THE last war made the internal combustion engine a potent factor in the commercial and private transportation of people and goods. There is every reason to believe that the present war will do a similar job for the airplane. The long range effect of the plane may well be more drastic than the introduction of trucks and buses because surface barriers and established trade routes mean little to planes.

S. J. SOLOMON

I do not believe any one has enough experience yet to definitely say what organizations will carry the air cargo of the future, what size and type of planes will be used, what terminal and forwarding facilities will be evolved, or what ton-mile rates will be quoted for different commodities. These are only some of the questions to be gradually solved by experience, research, and human ingenuity. The one point which today's knowl-

edge and experience well prove is that the airplane can carry tremendous loads to any place on earth, and at a level of ton-mile costs undreamed of two or three years ago.

I hope the shippers of today will take time out to help plan the most effective utilization of tomorrow's new transportation system. The mistakes and complexities of today's methods, if properly recognized, should help us in evolving a streamlined procedure proper and fitting for the world's fastest transportation medium. The better your business can be served by the airplane, the more you can maintain and improve your business position through the coming periods of change.

Northwest Already Has Plans in Works for Post-War Expansion

Air cargo, a dream or only a paper plan, a year or two ago, is today a reality. It may very easily be the deciding factor in the war. It certainly will help speed victory.

These are the views of Croil Hunter, president and general manager of Northwest Airlines Inc., second oldest airways system in the United States.

CROIL HUNTER

"The movement of materials and supplies by air in this war," Hunter says, "has demonstrated that freight planes are practical. The determination of commercial aviation in this country to gain and hold supremacy of the air is symbolized in many events that are transpiring today.

"The tremendous extent to which the airlines are operating military contracts will be a factor of prime importance in the development of post-war aviation.

"The problems being met and mastered and the volume of operations being conducted will put air transport in a position to be an important factor in sustaining the post-war economy of the country.

"The opportunity to train and develop large numbers of new personnel, the experience gained in the operation of new and larger types of flying equipment, and the technical pioneering work being done will be of incalculable benefit to Northwest Airlines and the nation."

Army Points Way, Thinks G. T. Baker

By G. T. BAKER, *President National Airlines Inc.*

THE future of air cargo is vast, and even the layman can conceive that tomorrow's light and medium weight freight will move on glider wings at highest speed.

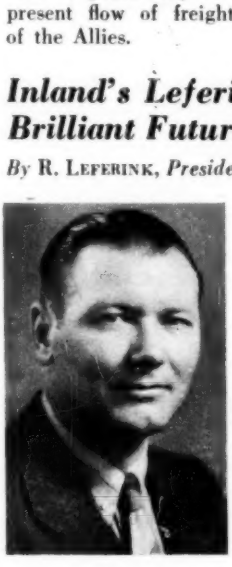
The U. S. Army Transport Command has blazed a path for globular air freight. The American salesmen will commute to all corners of the earth, and American products will follow them by the plane load. The crystal ball of the future reveals tremendous freight organizations in the air transport field utilizing huge cargo ships and busy airways for the promotion of international commerce as well as peace and goodwill.

G. T. BAKER

We in National Airlines are experiencing unheard of increases in air express at the present time, which is indicative of future developments. For example, in July, 1942, the company's express revenue exceeded July of the previous year by 462%. The war effort, of course, is responsible primarily for this growth, but products of peace may be expected to follow the present flow of freight for the armed forces of the Allies.

Inland's Leferink Sees Brilliant Future in Air

By R. LEFERINK, *President, Inland Air Lines Inc.*



The tremendous amount of air cargo being transported today by the air lines for the Army is giving those of us in the industry valuable experience. A peacetime nation and the world will greatly benefit later through the knowledge now being acquired. Air cargo after the war will be as potent conversely as air warfare is today.

Insurance for Less

As Air Cargo Volume Grows, Costs Will Inevitably Go Down

By Robert B. Lynch
Vice President, Riker & Lynch, Inc.

Robert B. Lynch is vice-president of the insurance brokerage firm of Riker & Lynch, Inc., specialists in marine and aviation insurance, 90 John St., New York. Mr. Lynch was requested to contribute this article to Air Transportation *in view of his background of experience as claims attorney of Associated Aviation Underwriters, where he served for 13 years in a position giving him unusual insight into aviation insurance in all its many phases. His subject is one that is certain to be of vast and growing practical interest to all shippers-by-air.*

SOONER, perhaps, than we realize, underwriters of the insurance companies will come face to face with an acute problem of how best to handle *cargo-by-air* insurance when air cargo suddenly becomes the predominant factor which is inevitable in post-war world trade.

Insurance, like the telephone or the electric light, is something we are prone to take for granted and only fully appreciate when the unforeseen or unplanned-for happens to disrupt our otherwise orderly existence. The purpose here is to outline briefly the logical insurance development to be expected when those "flying freight cars," which are doing such important hauling for the U. S. Armed Forces today, go to work for American domestic and foreign trade.

A shipper can purchase *cargo-by-air* insurance today and it is perfectly good insurance. The inland marine departments of various insurance companies are now covering these risks, but due to the fact that there is still a comparatively small amount of commercial shipments by air, the "spread", from an underwriting point of view, is very limited and there are no set rates or basic insuring conditions to take care of this type of insurance; each risk is separately considered and specially rated. The reason that the volume of aviation cargo as an insurance account class is small may be attributed in part to one or all of many factors.

Business Is Slow to Change

There has thus far been a failure—or possibly an oversight—on the part of shippers to recognize not only the feasibility of *shipping by air* but also its immense advantages. Many importers and exporters are already well aware of the untold possibilities and are utilizing to the fullest extent the facilities of domestic as well as transoceanic air lines. Though the surface has yet hardly been scratched, executives who already realize the ability of airlines to transport their goods as safely—and more expeditiously—than any other mode of transportation, are getting the jump on their competitors. "Time is money", and time saved by air is money earned.

Having largely failed to appreciate the practicability of shipment by air, possibly manufacturers, importers, exporters and forwarders have also overlooked the fact that such shipments by air can be insured. But for years there have been several groups of underwriters insuring the airlines and aircraft owners against physical damage to the ships as well as against third-party liability. These underwriting groups who have made a study of aviation insurance have concentrated principally on the insurance of the hulls and of what in marine insurance would be the P & I (Protection & Indem-

nity) coverage under their respective policies.

It is an accepted fact that these insurance companies or underwriters have contributed their full share to the development of the air transport industry in constantly revising their insurance policies to give maximum protection for lowest possible cost. Moreover, these companies have leaned over backward in rendering prompt and efficient claim service following accidents. Their far-sighted attitude in the handling of losses appears to have been dictated by a desire to do everything possible coverage-wise as well as loss-wise to further the best interests of the aviation industry.

It will not, therefore, be too difficult a task for such underwriters to adapt themselves quickly to take care of what is as yet an entirely unexplored and undeveloped field of insurance. Shippers of cargo who now have open or reporting policies with marine insurance companies will soon be asking for extended coverage to take care of their export or import shipments by air. Naturally, marine underwriters are going to have to look to the aircraft underwriters to determine what their "hull" loss experience has been in order better to equip themselves and to determine just what rates and conditions should apply to air cargo.

Insured Bs/L a Temporary Stopgap

Some of the airlines now provide what in the marine insurance business would be an insured bill-of-lading policy whereby a shipper is entitled to the benefits of insurance arranged by the operating airlines. This arrangement is entirely practical at the present time due to the limited amount of air shipments and probably is the most expedient method, for the present at least, to insure such shipments.

Tomorrow's Air Cargo Insurance

When—as assuredly it must—the airplane becomes the carrier of the majority of freight throughout the world, then marine insurance will have to step in and provide coverage under the open policies which have always been issued to importers and exporters. Even today, insurance companies underwriting cargo shipments by air consider such submissions attractive offerings for insurance. This fact is attested by the decidedly reasonable insurance rates which currently apply. Experience alone will be the ultimate factor in the promulgation and standardization of basic rates and conditions. In the meantime, insurance companies are glad to accept and will continue to underwrite all possible air shipments offered on the basis of experience developed to date on any and all scheduled airlines.

It is recognized that flying craft such as the 33-ton PB2Y's (Consolidated's famed Coronados) carry an immense undisclosed volume of heavy freight for American fighting services. They are operating upon regular schedules which span this planet. We are told that even larger freight planes are off the drafting board and on the production line. When peace and world trade return, these planes will fly cargoes of tremendous concentrated value.

The prospect fires the imagination of every thinking American. The prediction is that cargo-by-air insurance will be handled so smoothly and efficiently that it will be taken for granted—and being "taken for granted" is, after all, a rather eloquent tribute to the great business institution of insurance.

British, Too, Eyeing Air Cargo Future

That American cargo-carrying aircraft will dominate the skies of the post-war world as the Yankee clippers lorded it over the oceans in the middle 19th century is no foregone conclusion. Granting a United Nations victory—even tomorrow—the U. S. will have competition.

First hint of the competitive battle to come was given in London last month at a meeting of the British Institute of Export, reported by the New York *Herald Tribune*. There the leading English aircraft designer, E. C. Gordon England, called for the immediate construction by Britain of a merchant marine of the air to total 5,000 planes, each able to carry a 20-ton payload.*

The fleet that England's Engineer England visioned would be able to carry 1,000,000 men across the Atlantic in 15 hours or move 150,000 tons of cargo each way in seven days, the *Herald Tribune* reported. Though, naturally, most of his scheme involved the role which such a fleet might play in the war, no one doubted that he had at least one eye on the same post-war future that throngs of American designers and airline operators have long been describing.

Members of the Institute were reminded of what such a fleet "would mean to Britian's foreign trade after the war," and told to open their eyes to "a new conception of speed in filling overseas trade orders, as well as a fluidity of movement for both passengers and goods undreamed of until the present day."

But he tacitly acknowledged that the U. S. was ahead of Britain, praising the WPB's authorization of 100 super-transports and calling on British governments, both in England and in the dominions to get busy in the same direction.

Air Transportation's
International Express and Mail Tables

Here AIR TRANSPORTATION presents its first major statistical service: a quick guide to the basic cost of cargo shipments by air to all the major international airports to which such service is now commercially operated. Readers are invited to comment on the service and its usefulness to them.

Express rates quoted are from the U. S. international airport of departure and are based on the latest prevailing tariffs. Shippers are warned, however, that they are subject to change.

Bro—Brownsville
Eo—El Paso
Fv—Fort Worth
Lgs—Los Angeles
Mia—Miami
Nyk—New York
Ste—Seattle

International Air Express is subject to two charges: one a charge per pound weight or measurements at carrier's option (200 cu. in. to the pound of weight), the other a charge per $100 of valuation. The two must be added on any shipment to determine the cost. Neither includes the cost of insurance, which may be purchased by the shipper from the carrier or otherwise.

Priorities: The air carriers warn all shippers that express traffic, both U. S. Government and commercial, is so heavy that no guarantee can be given that any shipment will depart on any particular plane unless it enjoys U. S. priority. Otherwise it will depart, in relation to other shipments, in the order received at the international airport used, subject to wartime limitations. Shippers should forward cargo to international airports as far in advance of desired departure as possible and should communicate **via Railway Express Agency, Inc.** with the international air carrier as to whether the shipment can be forwarded without priority, as shipments without priority for certain countries are, at present, under embargo. **(Cargoes to be shipped via American Export Airlines, Inc. inquire at their office, Room 920, 25 Broadway, New York.)**

International air carriers whose schedules and rates are included here are indicated by the letter following the symbol for the airport of departure:

A—American Airlines, Inc.;
C—Colonial Airways;
E—American Export Airlines, Inc.;
P—Pan American Airways System and affiliates;
T—Trans-Canada Air Lines.

LATIN-AMERICA LINES

Destination	U. S. Gateway & Airline	RATES Per Lb.	RATES Per $100 Value	Depart	Mail per ½ Oz.
Antilla, Cuba	Mia P	.24	.25	Dly ex W,Sa	.10
Antofagasta, Chile	Mia P	1.26	.50	M,W,Th,Sa	.40
"	Bro P	1.34	.50	M,Tu,Th,Sa	.40
"	Lgs P	1.95	.50	Su,M,W,F	.40
Aracaju, Brazil	Mia P	1.26	.50	Su,Tu	.40
"	Bro P	1.71	.50	Su,F	.40
"	Lgs P	2.28	.65	Th,Sa	.40
Areia Branca, Brazil	Mia P	1.24	.50	Su	.40
"	Bro P	1.56	.50	F	.40
"	Lgs P	2.13	.50	Th	.40
Arequipa, Peru	Mia P	1.23	.50	Dly ex F	.30
"	Bro P	1.26	.50	Dly ex W	.30
"	Lgs P	1.93	.50	Dly ex Tu	.30
Arica, Chile	Mia P	1.25	.50	M,W,Th,Sa	.40
"	Bro P	1.26	.50	M,Tu,Th,Sa	.40
"	Lgs P	1.94	.50	Su,M,W,F	.40
Asuncion, Para	Mia P	1.73	.50	Su,F	.40
"	Bro P	1.86	.50	W,F	.40
"	Lgs P	2.43	.65	Tu,Th	.40
Bahia, Brazil					
(See Sao Salvador)					
Balboa, Canal Zone	Mia P	.76	.40	Dly	.15
"	Bro P	.90	.40	Dly	.15
"	Lgs P	1.45	.50	Dly	15
Baracoa, Cuba	Mia P	.28	.25	Dly ex Sa	.10
Barcelona, Venezuela	Mia P	.85	.40	Dly	.25
"	Bro P	1.17	.50	Dly	.25
"	Lgs P	1.78	.50	Dly	.25
Barranquilla, Columbia					
via Kingston	Mia P	.61	.40	Su,W,F	.35
via Balboa	Bro P	1.03	.40	Dly	.35
"	Lgs P	1.59	.50	Dly	.35
Bauru, Brazil	Mia P	1.58	.50	Su	.40
"	Bro P	1.71	.50	Th	.40
"	Lgs P	2.28	.65	W	.40
Belem, Brazil					
(See Paraguay)					
Bello-Horizonte, Brazil	Mia P	1.65	.50	Su,W,F	.40
"	Bro P	2.13	.50	M,W,F	.40
"	Lgs P	2.69	.65	Su,Tu,Th	.40
Buenos Aires, Argentina	Mia P	1.56	.50	Dly	.40
"	Bro P	1.70	.50	Dly ex W	.40
"	Lgs P	2.26	.65	Dly ex Tu	.40
Cali, Col. via Balboa	Mia P	.89	.40	Dly	.35
"	Bro P	1.03	.40	Dly	.35
"	Lgs P	1.59	.50	Dly	.35
Camaguey, Cuba	Mia P	.26	.25	Dly	.10
Camocim, Brazil	Mia P	1.22	.50	Su	.40
"	Bro P	1.50	.50	F	.40
"	Lgs P	2.05	.50	Th	.40
Campeche, Mexico	Mia P	.41	.25	W	.10
"	Bro P	.51	.40	Dly	.10
"	Lgs P	1.00	.40	Dly	.10
Campo Grande, Brazil	Mia P	1.48	.50	Su, W	.40
"	Bro P	1.61	.50	M,W,Sa	.40
"	Lgs P	2.18	.50	Su,Tu,F	.40
Canavieiras, Brazil	Mia P	1.33	.50	Su,Tu	.40
"	Bro P	1.81	.50	Su,F	.40
"	Lgs P	2.38	.65	Th,Sa	.40

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per ½ Oz.
		Per Lb.	Per $100 Value		
Caracas, Venezuela (*See La Guaira*)	.....	.....	.....	.....	...
Caravellas, Brazil	Mia P	1.36	.50	Su	.40
"	Bro P	1.85	.50	F	.40
"	Lgs P	2.41	.65	Th	.40
Caripito, Venezuela	Mia P	.89	.40	Dly	.25
"	Bro P	1.19	.50	Dly	.25
"	Lgs P	1.80	.50	Dly	.25
Cayenne, Fr. Guiana	Mia P	1.02	.40	Su	.30
"	Bro P	1.26	.50	Sa	.30
"	Lgs P	1.91	.50	F	.30
Cayo Mambi, Cuba	Mia P	.26	.25	Dly ex Sa	.10
Chetumal, Mexico	Mia P	.55	.40	W	.10
"	Bro P	.55	.40	M,F	.10
"	Lgs P	1.04	.40	M,F	.10
Chiclayo, Peru	Mia P	1.11	.50	Dly	.30
"	Bro P	1.19	.50	Dly	.30
"	Lgs P	1.81	.50	Dly ex Tu	.30
Cienfuegos, Cuba	Mia P	.28	.18	Su,W,F	.10
C. del Carmen, Mexico	Mia P	.45	.25	W	.10
"	Bro P	.47	.40	Dly	.10
"	Lgs P	.94	.40	Dly	.10
Ciudad Trujillo, D. R.	Mia P	.45	.25	Dly	.10
Cochabamba, Bolivia	Mia P	1.26	.50	W,Sa	.35
"	Bro P	1.35	.50	M,Th	.35
"	Lgs P	1.95	.50	Su,W	.35
Concepcion, Bolivia	Mia P	1.31	.50	Sa	.35
"	Bro P	1.45	.50	Th	.35
"	Lgs P	2.03	.50	W	.35
Cordoba, Argentina	Mia P	1.49	.50	Dly ex F	.40
"	Bro P	1.63	.50	Dly ex W	.40
"	Lgs P	2.19	.50	Dly ex Tu	.40
Coro, Venezuela (via Barranquilla)	Mia P	.74	.40	Su,W	.25
"	Bro P	1.11	.50	Dly	.25
"	Lgs P	1.69	.50	Dly	.25
Coro, Venezuela (via Maracaibo)	Mia P	.74	.40	Tu,Sa	.25
Corumba, Brazil	Mia P	1.41	.50	Su, W	.40
"	Bro P	1.56	.50	Tu,Sa	.40
"	Lgs P	2.13	.50	M,F	.40
Cristobal, Canal Zone	Mia P	.76	.40	Dly	.15
"	Bro P	.92	.40	Dly	.15
"	Lgs P	1.46	.50	Dly	.15
Cuenca, Ecuador	Mia P	1.06	.40	Su,W,F	.30
"	Bro P	1.15	.50	M,W,F	.30
"	Lgs P	1.76	.50	Su,Tu,Th	.30
Curityba, Brazil (Via Rio)	Mia P	1.60	.50	Su,W,F	.40
"	Bro P	2.00	.50	M,W,Sa	.40
"	Lgs P	2.58	.65	Su,Tu,F	.40
David, Panama	Mia P	.82	.40	Dly	.15
"	Bro P	.85	.40	Dly	.15
"	Lgs P	1.38	.50	Dly	.15
Esmeraldas, Ecuador	Mia P	.99	.40	W	.30
"	Bro P	1.11	.50	M	.30
"	Lgs P	1.71	.50	Su	.30
Florianopolis, Brazil	Mia P	1.63	.50	Su,W,F	.40
"	Bro P	2.11	.50	M,W,F	.40
"	Lgs P	2.68	.65	Su,Tu,Th	.40
Fort de France, Martinique	Mia P	.71	.40	Su,Sa	.15
"	Bro P	1.16	.50	M,F	.15
"	Lgs P	1.78	.50	Su,Th	.15
Fortaleza, Brazil (Ceara)	Mia P	1.23	.50	Su,Tu,Th,Sa	.40
"	Bro P	1.54	.50	Su,Tu,Th,F	.40
"	Lgs P	2.10	.50	M,W,Th,Sa	.40
Georgetown, British Guiana	Mia P	.90	.40	Su,Sa	.30
"	Bro P	1.24	.50	Th,Sa	.30
"	Lgs P	1.88	.50	W,F	.30
Guadalajara, Mexico	Bro P	.43	.25	Dly	.10
"	Lgs P	.59	.40	Dly	.10
Guantanamo, Cuba	Mia P	.28	.25	Dly ex Su	.10
Guatemala City, Gua	Mia P	.74	.40	Dly	.12
"	Bro P	.53	.40	Dly	.12
"	Lgs P	1.08	.50	Dly	.12
Guayaquil, Ecuador	Mia P	1.04	.40	Dly	.30
"	Bro P	1.15	.50	Dly	.30
"	Lgs P	1.75	.50	Dly	.30
Havana, Cuba	Mia P	.20	.18	Dly	.10
Hermosillo, Mexico	Bro P	.77	.40	Dly	.10
"	Lgs P	.24	.25	Dly	.10
Iguassu Falls, Brazil	Mia P	1.69	.50	Su,F	.40
"	Bro P	1.91	.50	W,F	.40
"	Lgs P	2.48	.65	Tu,Th	.40
Ixtepec, Mexico	Mia P	.76	.40	W	.10
"	Bro P	.41	.25	M,W,F	.10
"	Lgs P	.89	.40	M,W,F	.10
Joao Pessoa, Brazil (Cabedello)	Mia P	1.25	.50	Tu	.40
"	Bro P	1.64	.50	Su	.40
"	Lgs P	2.20	.50	Sa	.40
Kingston, Jamaica	Mia P	.39	.25	Su,W,F	.10
La Guaira, Venezuela	Mia P	.81	.40	Dly	.25
"	Bro P	1.15	.50	Dly	.25
"	Lgs P	1.75	.50	Dly	.25
La Paz, Bolivia	Mia P	1.25	.50	Su,Tu,W,Sa	.35
"	Bro P	1.30	.50	Su,M,Th,F	.35
"	Lgs P	1.95	.50	Su,W,Th,Sa	.35
Lima, Peru	Mia P	1.18	.50	Dly	.30
"	Bro P	1.24	.50	Dly	.30
"	Lgs P	1.88	.50	Dly	.30
Loja, Ecuador	Mia P	1.08	.50	Su,W,F	.30
"	Bro P	1.17	.50	M,W,F	.30
"	Lgs P	1.78	.50	Su,Tu,Th	.30
Maceio, Brazil	Mia P	1.26	.50	Su,Tu	.40
"	Bro P	1.68	.50	Su,F	.40
"	Lgs P	2.24	.50	Th,Sa	.40
Managua, Nicaragua	Mia P	.86	.40	Dly	.12
"	Bro P	.71	.40	Dly	.12
"	Lgs P	1.22	.50	Dly	.12
Manaos, Brazil	Mia P	1.24	.50	W,Sa	.40
"	Bro P	1.56	.50	M,Th	.40
"	Lgs P	2.13	.50	Su,W	.40
Manta, Ecuador	Mia P	1.03	.40	W,F	.30
"	Bro P	1.14	.50	Th,Sa	.30
"	Lgs P	1.74	.50	W,F	.30
Manzanillo, Cuba	Mia P	.26	.25	Dly ex Su	
Maracaibo, Venezuela (via Barranquilla)	Mia P	.69	.40	Su,W	.25
"	Bro P	1.08	.50	Dly	.25
"	Lgs P	1.66	.50	Dly	.25
Maracaibo, Venezuela (direct)	Mia P	.69	.40	Tu,Sa	.25
Mazatlan, Mexico	Bro P	.57	.40	Dly	.10
"	Lgs P	.45	.25	Dly	.10
Medellin, Columbia (via Boquilla)	Mia P	1.06	.40	Su,W,F	
Medellin, Columbia (via Balboa)	Mia P	1.06	.40	Tu,Sa	
"	Bro P	1.10	.50	M,Th,F	
"	Lgs P	1.65	.50	Su,W,Th	
Mendoza, Argentina	Mia P	1.41	.50	M,W,Th,Sa	.40
"	Bro P	1.55	.50	M,Tu,Th,Sa	.40
"	Lgs P	2.11	.50	Su,M,W,	.40
Merida, Mexico	Mia P	.37	.25	W	.10
"	Bro P	.55	.40	Dly	.10
"	Lgs P	1.04	.40	Dly	.10
Mexicali, Mexico	Lgs P	.20	.18	Dly	.10
Mexico City, Mexico	Mia P	.69	.40	W	.10
"	Bro P	.26	.25	Dly	.10
"	Lgs P	.69	.40	Dly	.10
"	Lgs A	.....	.....	Dly	.10
"	Fv A	.42	.25	Dly	.10
"	Eo A	.42	.25	Dly	.10
Minatitlan, Mexico	Mia P	.53	.40	W	.10
"	Bro P	.39	.25	Dly	.10
"	Lgs P	.86	.40	Dly	.10
Monterrey, Mexico	Fv A	.34	.25	Dly	.10
"	Eo A	.34	.25	Dly	.10
"	Lgs A	.....	.....	Dly	.10
Montevideo, Uruguay* (See notes below)	.....	.....	.....	.....	...
Nassau, Bahamas	Mia P	.20	.18	Dly ex Su,W	.10
Natal, Brazil	Mia P	1.25	.50	Su,Tu,Th,Sa	.40
"	Bro P	1.61	.50	Su,Tu,Th,F	.40
"	Lgs P	2.18	.50	M,W,Th,Sa	.40

* Shipments for Montevideo must be assessed rates to Buenos Aires plus 55c per 2 lbs. or fraction thereof (min. 55c) for forwarding by other carrier to Montevideo, plus $1.10 per shipment transfer charge at Buenos Aires.

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per ½ Oz.
		Per Lb.	Per $100 Value		
Oruro, Bolivia	Mia P	1.26	.50	Su,Tu,Th	.35
"	Bro P	1.33	.50	Su,Tu,F,Sa	.35
"	Lgs P	1.95	.50	M,Th,F,Sa	.35
Panama City, Panama (*See Balboa, C. Z.*)					
Para (Belem), Brazil	Mia P	1.13	.50	Dly ex M	.40
"	Bro P	1.34	.50	Dly ex Sa	.40
"	Lgs P	1.95	.50	Dly ex F	.40
Paramaribo, Sur	Mia P	.97	.40	Dly ex Su	.30
"	Bro P	1.25	.50	Dly ex F	.30
"	Lgs P	1.90	.50	Dly ex Th	.30
Parnahyba, Brazil	Mia P	1.21	.50	Su	.40
"	Bro P	1.48	.50	F	.40
"	Lgs P	2.04	.50	Th	.40
Point a Pitre, Guadeloupe	Mia P	.66	.40	Su,Sa	.15
"	Bro P	1.14	.50	M,F	.15
"	Lgs P	1.74	.50	Su,Th	.15
Port au Prince, Hai'i	Mia P	.37	.25	Dly	.10
Port of Spain, Trinidad	Mia P	.79	.40	Dly ex Su	.15
"	Bro P	1.20	.50	Dly	.15
"	Lgs P	1.81	.50	Dly	.15
Porto Alegre, Brazil	Mia P	1.70	.50	Su,W,F	.40
"	Bro P	2.19	.50	M,W,Sa	.40
"	Lgs P	2.75	.65	Su,Tu,F	.40
Puerto Suarez, Bolivia	Mia P	1.41	.50	M,Th	.35
"	Bro P	1.56	.50	Tu,Sa	.35
"	Lgs P	2.13	.50	M,F	.35
Preston, Cuba	Mia P	.24	.25	Dly ex Sa	.10
Quito, Ecuador	Mia P	.97	.40	Dly	.30
"	Bro P	1.09	.50	Dly	.30
"	Lgs P	1.68	.50	Dly	.30
Recife, Brazil	Mia P	1.26	.50	Su,Tu,Th,Sa	.40
"	Bro P	1.65	.50	Su,Tu,Th,F	.40
"	Lgs P	2.21	.50	M,W,Th,Sa	.40

Destination	U. S. Gateway & Airline	RATES		Depart	Mail per ½ Oz.
		Per Lb.	Per $100 Value		
Rio de Janeiro	Mia P	1.50	.50	Su,W,F	.40
"	Bro P	1.98	.50	M,W,F	.40
"	Lgs P	2.54	.65	Su,Tu,Th	.40
Robore, Bolivia	Mia P	1.38	.50	Th	.35
"	Bro P	1.51	.50	Tu	.35
"	Lgs P	2.08	.50	M	.35
Salinas, Ecuador	Mia P	1.05	.40	Th, Sa	.30
"	Bro P	1.15	.50	Tu, Th	.30
"	Lgs P	1.75	.50	M,W	.30
Salta, Argentina	Mia P	1.30	.50	Su,Tu	.40
"	Bro P	1.45	.50	Su,F	.40
"	Lgs P	2.03	.50	Th,Sa	.40
San Ignacio, Bolivia	Mia P	1.33	.50	Th	.35
"	Bro P	1.48	.50	Tu	.35
"	Lgs P	2.04	.50	M	.35
San Jose, Bolivia	Mia P	1.35	.50	Th	.35
"	Bro P	1.50	.50	Tu	.35
"	Lgs P	2.08	.50	M	.35
San Jose, Cos'a Rica	Mia P	.89	.40	Dly	.15
"	Bro P	.76	.40	Dly	.15
"	Lgs P	1.31	.50	Dly	.15
San Juan, Puerto Rico	Mia P	.53	.40	Dly	.10
San Salvador, El Salvador	Mia P	.79	.40	Dly	.12
"	Bro P	.61	.40	Dly	.12
"	Lgs P	1.14	.50	Dly	.12
Santa Cruz, Bolivia	Mia P	1.28	.50	M,Th	.35
"	Bro P	1.43	.50	Tu,Sa	.35
"	Lgs P	1.99	.50	M,F	.35
Santiago, Chile	Mia P	1.38	.50	M,W,Th,Sa	.40
"	Bro P	1.51	.50	M,Tu,Th,Sa	.40
"	Lgs P	2.08	.50	Su,M,W,F	.40
Santiago, Cuba	Mia P	.26	.25	Dly ex Su	.10
Sao Luiz, Brazil	Mia P	1.19	.50	Su,Tu,Th,Sa	.40
"	Bro P	1.43	.50	Su,Tu,Th,F	.40
"	Lgs P	1.99	.50	M,W,Th,Sa	.40

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ROUTE OF THE FLAGSHIPS

Destination	U. S. Gateway & Airline	RATES Per Lb.	RATES Per $100 Value	Depart	Mail per ½ Oz.
Sao Paulo, Brazil (via Rio)	Mia P	1.55	.50	Su,W,F	.40
"	Bro P	2.04	.50	M,W,Sa	.40
"	Lgs P	2.60	.65	Su,Tu,F	.40
Sao Salvador, Brazil (Bahia)	Mia P	1.28	.50	Su,Tu,Th,Sa	.40
"	Bro P	1.76	.50	Su,Tu,Th,F	.40
"	Lgs P	2.33	.65	M,W,Th,Sa	.40
St. Johns, Antigua, British West Indies	Mia P	.64	.40	Sa,Su	.15
"	Bro P	1.13	.50	M,Sa	.15
"	Lgs P	1.73	.50	Su,F	.15
St. Thomas, V. I.	Mia P	.57	.40	Sa,Su	.10
"	Bro P	1.10	.50	M,F	.10
"	Lgs P	1.68	.50	Su,Th	.10
Talara, Peru	Mia P	1.08	.50	Dly	.30
"	Bro P	1.17	.50	Dly	.30
"	Lgs P	1.79	.50	Dly	.30
Tampico, Mexico	Bro P	.20	.18	Dly	.10
"	Lgs P	.81	.40	Dly	.10
Tapachula, Mexico	Bro P	.53	.40	Dly	.10
"	Lgs P	1.02	.40	Dly	.10
Tegucigalpa, Honduras	Mia P	.82	.40	Dly	.12
"	Bro P	.68	.40	Dly	.12
"	Lgs P	1.18	.50	Dly	.12
Tres Lagoas, Brazil	Mia P	1.53	.50	Su	.40
"	Bro P	1.66	.50	We	.40
"	Lgs P	2.23	.50	Tu	.40
Tucuman, Argentina	Mia P	1.34	.50	Su,Tu	.40
"	Bro P	1.49	.50	Su,F	.40
"	Lgs P	2.05	.50	Th,Sa	.40
Turbo, Columbia (via Barranquilla)	Mia P	1.06	.40	Su,W,F	
Turbo, Columbia (via Balboa, C. Z.)	Mia P	1.06	.40	Tu,Sa	
"	Bro P	1.10	.50	M,Th,F	
"	Lgs P	1.65	.50	Su,W,Th	
Tuxpan, Mexico	Bro P	.20	.18	Dly	
"	Lgs P	.83	.40	Dly	
Uyuni, Bolivia	Mia P	1.26	.50	Su,Tu	.35
"	Bro P	1.38	.50	Su,F	.35
"	Lgs P	1.95	.50	Th,Sa	.35
Veracruz, Mexico	Mia P	.57	.40	We	.10
"	Bro P	.33	.25	Dly	.10
"	Lgs P	.79	.40	Dly	.10
Victoria, Brazil	Mia P	1.41	.50	Su,Tu	.40
"	Bro P	1.90	.50	Su,F	.40
"	Lgs P	2.46	.65	Th,Sa	.40
Villahermosa, Mexico	Mia P	.49	.40	We	.10
"	Bro P	.43	.25	Dly	.10
"	Lgs P	.90	.40	Dly	.10

Destination	U. S. Gateway & Airline	RATES Per Lb.	RATES Per $100 Value	Depart	Mail per ½ Oz.
ATLANTIC LINES					
Botwood, Newfoundland	Nyk P	.81	.40	Twice wk	.15
England via Foynes*	Nyk E	(Rates	on	Application)	.30
" *	Nyk P	(Rates	on	Application)	.30
Foynes, Eire	Nyk P	1.78	.50	Twice wk	.30
"	Nyk E	2.00	.50	"	.30
Hamilton, Bermuda	Nyk P	.55	.25	Twice wk	.10
Horta, Azores	Nyk P	1.70	.40	Once 2 wks	.30
Lisbon, Portugal	Nyk P	2.00	.50	Once 2 wks	.30
Scotland via Foynes*	Nyk E	(Rates	on	Application)	.30
" *	Nyk P	(Rates	on	Application)	.30
Shediac, N. B.	Nyk P	.51	.25	Twice wk	.06
Wales via Foynes*	Nyk E	(Rates	on	Application)	.30
" *	Nyk P	(Rates	on	Application)	.30
ALASKA LINES					
Bethel, Alaska	Ste P	1.11	.40	Schedules not published	.06
Fairbanks, "	Ste P	.90	.40	"	.06
Flat, "	Sea P	1.05	.40	"	.06
Galena, "	Sea P	1.00	.40	"	.06
Golovin, "	Sea P	1.08	.40	Nov. 1-Apr. 30	.06
Hot Springs, "	Sea P	.92	.40	Nov. 1-Apr. 30	.06
Juneau, "	Sea P	.56	.25	Schedules not published	.06
McGrath, "	Ste P	1.00	.40	"	.06
Nome, "	Sea P	1.11	.40	"	.06
Nulato, "	Sea P	1.03	.40	Nov. 1-Apr. 30	.06
Ophir, "	Sea P	1.03	.40	Schedules not published	.06
Ruby, "	Ste P	.99	.40	"	.06
Tanana, "	Sea P	.95	.40	Nov. 1-Apr. 30	.06
Whitehorse, Canada	Sea P	.66	.40	Schedules not published	.06
CANADIAN LINES					
Toronto, Canada	Nyk A	.16	†	Dly	.10
"	Nyk T	.16	†	Dly	.10
Montreal, Canada	Nyk C	.12	†	Dly	.10

* British Overseas Airways Corp. carries from Foynes, Ireland, to destinations in England, Scotland, and Wales.

† Canadian air express is carried on the same basis as air express within the U. S.: $50 declared value free; excess charged at 10 cent per $100 or fraction thereof.

Domestic Air Express Rate Schedule

A handy table for finding approximate shipping costs

Total cost between addresses in airport cities—No extras

Distances in Air Miles	WEIGHT IN POUNDS 1	5	10	25	50	100	200	250	350	500	750	1000
200	$1.00	$1.12	$1.32	$2.00	$4.00	$8.00	$16.00	$20.00	$28.00	$40.00	$60.00	$80.00
400	1.00	1.44	2.04	4.00	8.00	16.00	32.00	40.00	56.00	80.00	120.00	160.00
600	1.00	1.76	2.76	6.00	12.00	24.00	48.00	60.00	84.00	120.00	180.00	240.00
800	1.00	2.08	3.48	8.00	16.00	32.00	64.00	80.00	112.00	160.00	240.00	320.00
1000	1.00	2.40	4.20	10.00	20.00	40.00	80.00	100.00	140.00	200.00	300.00	400.00
1500	1.00	3.20	6.00	15.00	30.00	60.00	120.00	150.00	210.00	300.00	450.00	600.00
2000	1.00	4.00	8.00	20.00	40.00	80.00	160.00	200.00	280.00	400.00	600.00	800.00
2500	1.00	4.80	9.60	24.00	48.00	96.00	192.00	240.00	336.00	480.00	720.00	960.00

QUICK REFERENCE AIR MAIL TABLE

SINCE World War II has interrupted regular air express schedules to many parts of the world, air mail remains in many cases the only means of rapid shipment. The following table, therefore, will be useful in cases not covered by the main air express schedule tables beginning on page 37.

All rates are per half-ounce from U. S. international airports of departure. Due to war conditions, departures (except to Latin America, Canada, Newfoundland and Alaska) are not sufficiently regular to be listed and are likewise items of military secrecy.

Air mail to Canada, Newfoundland and Alaska moves at the usual domestic rate of six cents per ounce.

Aden 70c	British Guiana 30c	England and Wales 30c
Afghanistan 70c	British Honduras 20c	Eritrea 70c
Algeria 33c	British Somaliland 70c	Ethiopia 70c
Anglo-Egyptian Sudan .. 70c	British Virgin Islands ... 10c	France (Unocupied) 30c
Angola 60c	Brunei 70c	French Cameroons 60c
Anguilla 15c	Canal Zone 15c	French Equatorial Africa. 60c
Antigua 15c	Canary Islands 40c	French Guiana 30c
Argentina 40c	Cape Verde Islands 55c	French Guinea 50c
Aruba 25c	Ceylon 70c	French Somaliland 70c
Azores 30c	Chile 40c	French Sudan 50c
Bahamas 10c	China (Unoccupied) 70c	French Togoland 45c
Bahrein Islands 70c	Colombia 35c	Gambia 50c
Baluchistan 70c	Costa Rica 15c	Gibraltar 30c
Barbados 25c	Cuba 10c	Gold Coast Colony 50c
Barbuda 15c	Curacao 25c	Grenada 15c
Belgian Congo 60c	Cyprus 70c	Grenadines 15c
Bermuda 10c	Dahomey 45c	Guadeloupe 15c
Bolivia 35c	Dominica 15c	Guatemala 12c
Bonaire 25c	Dominican Republic 10c	Haiti 10c
Brazil 40c	Ecuador 30c	Hawaii 20c
British Cameroons 60c	Egypt 70c	Honduras (Rep.) 12c

(*Continued on page 46*)

QUICK REFERENCE AIR MAIL TABLE—*Continued from page 45*

Iceland 30c	Nicaragua 12c	Scotland 30c
India 70c	Niger 45c	Senegal 45c
Iran 70c	Nigeria 50c	Sierra Leone 50c
Iraq 70c	Northern Ireland 30c	Southern Rhodesia.....60c
Ireland 30c	Northern Rhodesia.....60c	Southwest Africa 60c
Italian Somaliland.....70c	Nyasaland 60c	Spain 30c
Ivory Coast.....50c	Palestine 70c	Spanish Guinea 50c
Jamaica 10c	Panama 15c	Surinam 30c
Kenya 60c	Paraguay 40c	Sweden 30c
Lebanon (Rep.) 70c	Peru 30c	Switzerland 30c
Liberia 50c	Portugal 30c	Syria 70c
Libya 70c	Portuguese East Africa..60c	Tanganyika 60c
Madagascar 60c	Puerto Rico.....10c	Trans-Jordan 70c
Malta 70c	Redonda 15c	Trinidad 15c
Martinique 15c	Rio de Oro.....40c	Tunisia 33c
Mauritania 45c	Saba 10c	Turkey 70c
Mauritius 60c	St. Christopher.....15c	Uganda 60c
Mexico 10c	St. Eustatius.....10c	Union of South Africa..60c
Montserrat 15c	St. Kitts.....15c	Uruguay 40c
Morocco 33c	St. Lucia.....15c	Vatican City State.....30c
Mozambique 60c	St. Martin.....10c	Venezuela 25c
Nevis 15c	St. Vincent.....15c	Virgin Islands (U. S.)..10c
Newfoundland 15c	Salvador (El) 12c	Zanzibar (Incl. Pemba)..60c
	Saudi Arabia 70c	

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Aden 20c	Ethiopia 20c	Saudi Arabia 20c
Anglo Egyptian Sudan.15c	French Somaliland 20c	Southern Rhodesia..... 5c
Angola 5c	Italian Somaliland 20c	Tanganyika 10c
*Belgian Congo 14c	Kenya 10c	Turkey 20c
British Somaliland.....20c	Libya 20c	Uganda 10c
Egypt 20c	Malta 20c	Zanzibar (Incl. Pemba)..10c
Eritrea 20c	Northern Rhodesia 5c	

*Steamer to Bomba (or Matadi), thence by air, 9 cents per half ounce in addition to regular postage.

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POSTAL REGULATIONS
AIR-MAIL RESTRICTIONS

Effective immediately the Post Office Department has issued Order No. 18605 covering matter destined outside of the continental United States. This order is as follows:

"The War and Navy Departments exercise control over the transportation of air mail to overseas destinations. Reports received during the past few weeks show conclusively that the volume of air mail now being received for transmission to certain points outside the continental United States is greatly exceeding and will continue greatly to exceed the facilities that are or can be made available for that purpose. Therefore, it becomes necessary to materially reduce the weight of individual pieces of air mail so that the transportation by air of the greatest possible number of letters to those areas may be assured.

The existing military demands upon air-transportation facilities for strategic cargo and for personnel essential to the war effort have made necessary the immediate establishment of the following order of preference in the loading of mail on aircraft destined for restricted areas:

First—Official air mail.

Second—V-Mail.

Third—To the extent space is available, other letter mail weighing not in excess of 2 ounces per letter.

The public should be informed that the quantities of air mail coming within the third category that can be given air dispatch to the restricted areas cannot be accurately predicted, and such matter may have to be transported by surface means. Military necessity may later require that only official air mail and V-Mail be transported by air to these areas.

Until further notice, therefore, only letters in their usual and ordinary form weighing not in excess of two ounces and coming within the third category may be accepted as air mail for transmission to foreign countries and to overseas Navy post offices and A.P.O.'s.

Packages of merchandise, prints, etc. (except official packages) will not be carried by air from the United States.

The **foregoing restrictions apply to air mail for all ports outside the limits of the continental United States except** that for the time being they will not apply to Mexico, Central America and South America, the West Indies, and other islands within the Caribbean area, Alaska, Canada, and Newfoundland.

Postmasters will please instruct their patrons as far as practicable without expense to the Department of these changes in the manner of handling air mail and further urge upon their patrons the importance of using V-Mail for messages to persons in the military service outside the United States and of using the lightest possible stationery for other overseas correspondence."

Restriction of Printed Matter for Dispatch to Neutral European Countries

The Post Office Department has issued Order No. 18599 reading as follows:

"With the view of controlling the exportation to neutral countries in Europe of matter that may be released by publishers for purely domestic distribution; of alleviating the possibility of transmission by individuals of harmful messages through such medium, and of relieving as much as possible the transportation problem of handling international mails under present conditions, the following restrictions shall become **effective immediately.**

Printed matter originating in the United States or Canada, addressed to European neutral countries, will not be permitted to go forward to destination unless mailed by—

(a) The publishers or registered news agents;

(b) Firms or organizations for which the material is published;

(c) The publisher's distributing agency.

Individuals and concerns not within the above groups will be permitted, under certain conditions, to export printed matter under license to be issued by the Office of Censorship or the Board of Economic Warfare. Printed matter, the exportation of which is licensed, will bear notation, including the license number, on the outer wrapper. Printed matter not bearing appropriate license indicia on the outer wrapper from individuals and concerns not classified within groups (a), (b), and (c), when mailed in the United States, United States possessions, and the Canal Zone, will be appropriately endorsed by the Censorship authorities and returned to the sender. Such printed matter when mailed by individuals and concerns in Canada, will be forwarded under cover to the Chief Postal Censor, Ottawa, Canada, by the Censorship Station.

Printed matter as referred to herein will include books, magazines, pamphlets, booklets, circulars, catalogs, news letters, newspapers and advertising material, whether printed, mimeographed, or otherwise mechanically duplicated, and clippings therefrom. It does not include securities, bills of lading, invoices, statements of accounts, or other business forms of a similar nature used in commerce and exchange. It does not include A.P.O. mail and mail of Government agencies.

Post offices will please advise interested patrons as far as practicable of these restrictions and decline to accept the prohibited printed matter for mailing. Should such unacceptable articles of printed matter be received in the mails, the post office of mailing should return them to the senders appropriately marked. Any of such prohibited articles as may reach the exchange office, shall be submitted to the Censorship Station and after examination shall be returned to the senders."

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